JOURNAL

OF THE

UNITED STATES CAVALRY ASSOCIATION.

VOL. V. DECEMBER, 1892. NO. 19.

CAPTAIN CRAWFORD'S LAST EXPEDITION.

By Lieutenant W. E. SHIPP, Tenth Cavalry.

IN the United States Army Register for 1887, we find the following entry: "Died—Captain Emmett Crawford, Third Cavalry, January 18, 1886, near Nacori, Mexico, of wounds received January 11, 1886, in an attack made on his command of Indian scouts by a force of Mexicans."

The circumstances attending his death were so sad and so peculiar, and the character of Captain Crawford was so elevated and noble, that the story of his last expedition possesses a mournful interest for those acquainted with it.

It was the lot of the writer to be a member of this expedition, and to be thrown into intimate association with him, and so to learn to know and to love him; to witness his fall and death; and finally to see his remains buried in the land of strangers—of those who had killed him while he was trying to help them. It is the fact of having had these opportunities, together with the desire to pay a tribute to the memory of one so worthy to be classed among our heroes, that furnishes the reason for writing this account.

What is generally known as Geronimo's outbreak led to the cir-

C. C. C. Carr. Editor.

cumstances which resulted in the death of Captain CRAWFORD, and it will therefore be necessary to begin our story by a brief account of that outbreak.

In May, 1885, a large portion of the Chiricahua and Warm Spring Apaches, then united as one tribe, without cause left their reservation at Fort Apache, Arizona. NATCHEZ was their hereditary chief and, being a man of ability in addition, was the real leader; the son of old COCHISE, who was for many years the terror of the southwest, NATCHEZ was worthy of his father. GERONIMO was the medicine man and orator of the tribe. He was not a great warrior; but, like SITTING BULL in the North, his influence was powerful among his people. A man of diabolical appearance, and with a character to correspond, he always appealed to the bad side of the Indian nature; and they, like too many people in this world, generally listened to him in preference to better men. By some chance GERONIMO was always credited by the whites with being at the head of the renegades; this error is of so little importance that, for the sake of convenience, we will adopt it.

The Indians at once entered upon a career of murder and pillage, embracing in their zone of operations large portions of Arizona and New Mexico in the United States, and Chihuahua and Sonora in Old Mexico. The theater of war was so rough and barren that it was with great difficulty that they were followed at all by the troops. Fitted by nature and by long experience for such warfare, and finding plenty of food by stealing cattle and horses, they laughed at their pursuers and continued to spread desolation and terror wherever they chose to go. The broken down horses and the ragged and worn out soldiers showed the work the troops had been doing—work discouraging and doubly hard on account of the almost total lack of success.

Seeing that the efforts of the regulars were fruitless, General CROOK, the Department Commander, turned to a plan which had long been a favorite one with him: the employment of Indian scouts to subdue their own people. The hostiles, or "broncos," as they were generally called, had made their headquarters in the great Sierra Madre Range in Mexico, where they had a safe base for operating both in our country and in Mexican territory. A treaty was now made in Washington, which allowed our troops to cross the border, but it had the great drawback of not allowing us to establish any supply camps in Mexico.

Under General CROOK's plan two expeditions were organized, composed mainly of scouts, and commanded by Captain WIRT DAVIS,

Fourth Cavalry, and Captain EMMETT CRAWFORD, Third Cavalry. The latter had been recalled for this duty from Texas, where he had just gone with his regiment. He had entered the army after the war from the volunteer service, and had since been almost continuously in active service on the frontier, taking part in most of our great Indian wars, and making for himself a reputation for bravery and devotion to duty not surpassed by that of any officer of the army. Though he had distinguished himself in the northern campaigns against the Sioux and others, yet it is probable that his service in Arizona had been still more valuable. In 1883 he had commanded the scouts in General CROOK's expedition into Mexico, the first expedition ever organized for a campaign against Indians in that country.

Returning from this duty, he was placed in police charge of the San Carlos Reservation, where he had entire control of the Indians lately on the war-path, and where he also kept order among the other turbulent elements. Constantly opposed by employés of the Interior Department and other interested parties, his final overthrow of his enemies and the exposure of their frauds, led to a lasting change in the administration of affairs on the reservation; a change for which the people of Arizona have yet cause to be thankful. Captain CRAWFORD had a thorough knowledge of Indian (especially Apache) character; and he knew personally a great number of the men of this tribe. This knowledge, together with his high character, gave him great influence with them. They knew from experience that they could believe him and trust him; he was kind to them, yet never allowed familiarity; his pure life, his devotion to duty and his fearlessness in the discharge of it, won their respect. Hence he was peculiarly fitted to command them when they took service under the Government.

The two expeditions sent into Mexico were as successful as could have been expected, each capturing a number of squaws and children, and breaking up the camps which had formed the homes of the "broncos." The wearing-out process seemed to furnish the only hope of subduing them; this process, however, promised to be long and somewhat tedious.

In the fall the commands were brought in and thoroughly reorganized. It had been necessary to send out the first expeditions rather hastily; now time was taken to more carefully select the scouts, and to more thoroughly equip the commands. The commanders remained the same, but some changes were made among the other officers. Captain CRAWFORD chose the White Mountain Apaches and the friendly Chiricahuas as his scouts, because they

were mountain Indians, and were less civilized than the other tribes, and therefore, in his opinion, better fitted for the work to be done. The Chiricahuas were part of the tribe then on the war-path, and had themselves been at peace only about two years. No soldiers were to be taken. The peculiar material selected was believed to be that best adapted to the task of following GERONIMO's people into their retreats in the terrific fastnesses of the Sierra Madre, where it was hoped to surprise them and compel their surrrender. Surprise was absolutely necessary to success; once aware of the proximity of foes, the hostiles would scatter and render it impossible to follow them. Indians of other tribes and soldiers were not believed to possess the skill and endurance necessary to surprise the vigilant Chiricahuas; Captain CRAWFORD in his previous expedition had found the soldiers he had with him a burden.

The great risk taken in trusting so largely to relatives of the hostiles seemed justifiable, as they alone knew the haunts and habits of the enemy. Many gloomy predictions were made about their treachery, but the many eager offers of service by the young officers in the department showed that they at least were not daunted by the prospect. The selections made were First Lieutenant M. P. MAUS, First Infantry, and Second Lieutenant W. E. SHIPP, Tenth Cavalry, to command scout companies; Second Lieutenant S. L. FAISON, First Infantry, to be Adjutant, Quartermaster and Commissary; Dr. T. B. DAVIS, U. S. Army, to be Surgeon. One hundred scouts were enlisted at Fort Apache, and started for Mexico on the 18th of November, 1885. But before we follow the command on its march it will be necessary to take a look at its organization and personnel.

Two white chiefs of scouts assisted the officers, their principal duty being the daily issue of rations—daily, because the scouts would always eat up at once whatever was given to them. One of these men, HORN, also interpreted from Spanish into English. CONCEPCION, an old Mexican, who had been a captive, was Apache interpreter. The two interpreters were necessary, because no one could be found to interpret directly from Apache. The interpreters were used only in important talks, as the scouts and their officers understood each other well enough for ordinary purposes. NOCHE, a Chiricahua, was the Sergeant-Major, and performed the duties of leading guide and scout. His superior for these duties never existed. The other conspicuous scouts who were always selected for difficult service, were COONEY, CUSO, DUTCHY, WASSIL, KAT-E-KAHN and CHIKIZ-IN, among the Chiricahuas; NAH-WAH-ZHE-TAH, GOOD-E-NA-HA,

Loco and Josh, among the White Mountains. Some of these deserve our notice. Cooney and Cuso were two short, big-chested men, with almost unlimited powers of endurance; in their savage way they were as honest and loyal as men could be, and were splendid scouts. Dutchy was a known murderer; brutal and mean, but in many respects a valuable scout.

Our captain's treatment of Dutchy well illustrates his methods with Indians. During the previous summer this man had mutinied and had been sent to Fort Bowie, where he was put in irons. Though he was undoubtedly guilty, Captain Crawford took him again as a scout, but refused to give him the chevrons he demanded. He, however, selected him as his body servant, and trusted implicitly this man who had not long before threatened his life. The result was the establishment of a complete ascendency over Dutchy, and increased respect on the part of the others, as they saw how little he feared this dangerous man. Wassil was an old man, a fine scout and the best hunter of all. His claim to fame rests, however, on his escape from the train conveying him to Florida in September, 1886, and his return from Independence, Mo., to Arizona. His long journey through an unknown country, part of it thickly settled, shows what an Indian can do towards finding his way. He is now (1891) a renegade in the mountains; has committed several murders, and seems safe from capture.

Nah-wah-zhe-tah, or Nosey, as he was irreverently but appropriately called, was a great medicine man—which means that he was a doctor, preacher, conjurer and prophet, all in one. Dressed in an old alpaca coat, ornamented with a pair of shoulder straps, and a pair of cavalry officer's trousers, much too long for his short legs, his first appearance was hardly in keeping with his solemn character and functions. Though undoubtedly a humbug, yet his influence was exercised for good, and rendered the task of governing the wild scouts much easier. Poor old Nosey is now in jail for killing his own chief, the result of too much tiswin, the Apache intoxicant.

The scouts were not burdened with much clothing—the soldier's blouse, a pair of cotton drawers and a waist cloth, moccasins and a red head-band, constituted the usual costume. Their picturesqueness, and above all, their efficiency, were not spoiled by attempts to make them look like regulars. In these men were apparent the results of heredity and long training. Small and unable to compete with white men in any athletic sports, yet they made us feel like babies when it came to mountain work. The Chiricahuas, especially, were

a never-ending source of wonder. Their knowledge of country; their powers of observation and deduction; their watchfulness, endurance and ability to take care of themselves under all circumstances, made them seem at times like superior beings from another world. No wonder our soldiers could not catch people like these. If our little army of 25,000 were composed of such men, and animated by the proper spirit, it would be unconquerable by the best army now existing in Europe.

The command exercised over the scouts depended mainly upon the moral influence of the officers. Eager as they seemed to be to do their duty, care was taken to avoid trying to force them into ways foreign to their nature and training. They fully understood their work, and except to exercise a general control and supervision over them, no attempt was made to interfere. The temptation to be unduly meddlesome was, however, not strong, for most of the scouts had been on the war-path, which meant that many white men had been killed by them. They were, however, treated with perfect confidence, and soon little thought was given to their former bloody records.

The methods of camping and marching were in conformity with the character of these troops. They cooked their own food without the necessity of supervision, and, on going into camp, they always voluntarily took such precautions as circumstances made necessary. They were ready to start by sunrise, or sooner, and when not in a dangerous neighborhood, much liberty was allowed them, so that they scattered on foot in hunting parties; at the same time they were sure to find signs of the hostiles if the latter were anywhere in the neighborhood. The officers and chiefs of scouts, on mules or on foot, accompanied the scouts to see that no depredations were committed. This free life had many charms, despite the hardships often accompanying it. All supplies and baggage were carried on the pack-mules, these being divided into three big trains, under DALY, HAYES and ROVER, forty-five packs to each train. The aparejo was, of course, the pack-saddle used; each mule, when in good condition, could carry comfortably about 250 pounds. Each train was complete in itself, with its "boss packer," its cargador (the man who arranged the loads and kept everything in repair), its blacksmith, its cooks, and its bell-horse. Seven other men belonged to a train, but no matter what a man's position was—boss or cook—he was expected to help pack. Most of the mules were seasoned to mountain work and the packers were old hands, many of them having spent the best years of their lives in the Government service. There was very

little room for improvement in these trains; if the Government could always count on service as efficient as that rendered by the packers in this campaign, there would be no cause for complaint. The trains have now all been broken up, many of the mules sold, and most of the packers discharged without reward or recognition. It is a pity that these schools for the difficult art of packing no longer exist. Some day, perhaps even in a civilized war, there may be cause to regret it.

From the starting point at Fort Apache the command went to Fort Bowie, Arizona — General CROOK's field headquarters — where it was inspected by General SHERIDAN. After a few words of encouragement from him and from General CROOK, we started on a night march to the Dragoon Mountains, Arizona, as a band of hostiles had been reported in that neighborhood. After a week's scouting, no trail being found, we crossed the Mexican line into Sonora on the 6th of December, heading toward Fronteras. From there we went south to the mining town of Nacosari, and then, leaving all roads, struck into big mountains on the west slope of the Sierra Madre, where there was plenty of hard work. An abundance of deer made the fare good, however, and compensated us for other hardships. Emerging from the mountains, we found ourselves in the valley of the Barispe, a tributary of the Yaqui, and camped at the town of Huasabas, where groves of orange and lemon trees showed the tropical nature of the country. The fruit helped at the Christmas dinners, which otherwise would have been almost wholly made up from UNCLE SAM'S army ration. The valley of the Barispe was fertile, but the inhabitants did not appreciate the advantages Nature had given them; they were a miserable people, living in mud huts almost bare of furniture and wanting in every comfort. Wheeled vehicles were unknown; the burro did the freighting for the country. The Apaches had long been a terror, but the Mexicans seemed to regard them as a natural evil not to be gotten rid of by any effort on their part. There were no doctors among them, and during our stay they availed themselves of the services of our kind-hearted surgeon, who was never idle, receiving, however, as fees, only a few oranges or a cheese, sometimes a welcome bottle of mescal.

Huasabas was the scene of our first serious trouble with the Mexicans. One of the scouts, who was drunk, but unarmed, was so badly shot in the face by a soldier that he had to be sent back home. At such times the exertions of the officers alone prevented bloody fights; their duties were dangerous and not at all pleasant.

There were plenty of rumors of outrages still farther south, so we

crossed the mountains in that direction, and came to Bacadehuachi, a tiny town for such a name. Here, hid away in these wilds, was a crumbling mission, one of those monuments to the wonderful old priests who, ages ago, braved hardships and dangers to plant their religion among the Indians; sometimes accomplishing much, their zeal too often brought their lives to an end in torture. The priests of that day must have been experts at solving the labor question to have gotten out of the ancestors of the lazy people we saw the work necessary to build this big brick church with its bells, its towers and its wings.

The Apaches had left their mark all through the country we were now traversing. The abandoned and ruined ranches, and occasionally a deserted village; the way in which the people spoke; the dismal stories they told, and the scars they showed, and the general desolation which prevailed in this fertile and well-watered, though rough country, all bore witness to the curse these Indians were. Nacori, the next village, was surrounded by a wall to protect the inhabitants, and the little fields hugging the town showed that they did not dare to go far from it.

Our hardest work was now at hand; the country was getting rougher still, and there was no doubt that the hostiles were not far away. The surplus rations were stored in Nacori, and Lieutenant FAISON was sent to Lang's Ranch, N. M., with two pack-trains for more. Taking DALY'S train, Captain CRAWFORD, marching at night, went into camp about twenty miles to the south of Nacori, and sent out a small party on foot to explore. This party having returned without seeing any signs, it was decided to leave the pack-train in camp with a small guard, and to strike out on foot for the rough country near the forks of the Yaqui, where the Mexicans had reported GERONIMO'S headquarters to be located. Safe in this retreat, where they had never yet been followed, the Indians had been sending out small parties to kill and to steal. Twelve days rations and one blanket for each officer and scout were to be packed on a few of the best mules, the three packers accompanying them being the only men allowed to ride. When the scouts found that we were to walk with them, they begged hard to be allowed to go alone, as they felt certain that the white men could not keep up. But the Captain would not submit to such an arrangement, and they reluctantly gave up.

Before starting, there was a big medicine dance, at which old NAH-WAH-ZHE-TAH for the first time unrolled the sacred buckskin which he had worn over his shoulder since he had left Fort Apache.

The ceremonies were impressive, even to the white men. So thoroughly in earnest were the Indians that the solemn dances and marching, the kneeling before the sacred buckskin as it was presented to be kissed, and the old medicine man's blessing of the arms, seemed not meaningless to us as we looked on in silence. With NOCHE and a picked band, equally divided between the Chiricahuas and White Mountains, leading, we started out on the 3d of January, 1886, and camped that night on the Haros River, a large tributary of the Yaqui. On this and the following marches the advanced guard marched far ahead, thoroughly reconnoitering the country; immediately preceding the main body were a few good scouts; Captain CRAWFORD always led the main body, and allowed none of the scouts in it to get in front of him. Fording the river in the morning, we were toiling up and down the steep hills beyond when, about six miles from the river, a small trail of Indians was struck and, soon after, the trail of a big band traveling east. Many tracks of ponies and cattle showed how successfully they had been marauding. From some slight sign the scouts declared that NATCHEZ was with the band, which meant that GERONIMO was there also. Cautiously as we had been advancing before, it was now necessary to be still more careful, for we were on the trail of Indians whose vigilance never relaxed, even here where they had never been followed. The extreme caution of these Indians was shown by the location of their camps, which were always high up on some well guarded point, whence all the approaches could be watched. It mattered not to the bucks who selected them, how many miles the poor squaws had to carry wood and water. The way the trail ran, concealed as it ascended the hill and exposed to view as it descended, was another evidence that they did not intend to be caught napping. This necessitated many a weary detour, as their watchful rear guard might at any time discover us if we followed the down hill trail.

In the hope that the Indians would establish a permanent camp, we hustled on, thinking it possible that the scouts, as expert as they, might be able to surprise them. From the time we started on this foot scout, the hardships had been great. The country was so rough that it seemed Nature must have made a special effort in that direction. Wearing moccasins whose thin soles allowed the feet to feel every stone of the millions that lay in the path, we had to keep up with our Indians, who had been climbing mountains since they were babies, and whose ancesters had for ages been mountaineers. The days were fairly warm, but the high altitude made the nights bitterly cold. Without shelter and limited to one blanket each, and

with no fires allowed, sleep was almost impossible to all except the scouts, who slept in long rows, with one's head at his neighbor's feet, and seemed tolerably comfortable. We could not start till the advanced scouts had thoroughly reconnoitered the country, so that it was always late in the day when we broke camp. The marches did not end till late at night, when camp, cheerless as it was, was at least better than the endless climbing of mountains or falling over rocks. Often we had to follow some cañon in which lay immovable boulders made slippery by the water which had once flowed over them. Going through them in the dark, it seemed as if we would surely break our necks or dash out our brains, so often did we fall.

Deer were plentiful, but none could be killed for fear of betraying our presence. The blouses were turned so as to expose the gray lining, which was less conspicuous than the blue side, and all prominent marks about the person were discarded. When it was necessary to make fires for cooking, the scouts took charge; in the day time small smokeless fires were made from very dry wood; at night the fires were hid away in some gully or depression, so that they could not be seen a few yards away. In crossing ridges, care was taken never to expose the body against the sky line. Whether in camp or on the march the scouts exercised a constant watchfulness, and no precaution that could possibly be taken was ever neglected. Long habit had made these things come naturally to them. Watching the scouts, one could not help thinking how hopeless was the attempt to catch people like them with men trained and equipped in the manner of our own soldiers. The Apache seems to see everything and to know everything when in the field; no matter how dim a trail may be, it may be made by a few moccasined feet passing over rocks, he follows it by sight as easily as the good hound follows his prey by scent. Soldiers, I mean officers as well, nearly always scorn the precautions that Indians never neglect. Many a time the pursuer has found himself only too glad to escape from the little band he had started out to destroy. We made but few miles a day, so many halts had to be made to reconnoiter, the country was so rough and night marching so difficult. Cattle from which only a few pounds of meat had been cut, were often found lying on the road. On the 6th, the remains of a number were found, the meat having been carried off and no more tracks were seen. On the 7th the trail crossed the Haros and we found ourselves in that terrible country between the Haros and the Satochi, so appropriately called by the Mexicans "Espinosa del Diablo" or "Backbone of the Devil."

On the 9th of January the start was made about noon, and we

had already made a good day's march when, at dusk, NOCHE reported that the hostile camp had been located. Fearing that we would be discovered if we delayed, it was decided to march all night and attack at daylight. The mules were far to the rear and had to be left behind; so, with empty stomachs, we began this toilsome march that was to test the strength of the scouts, no less than that of the white men. The doctor remained with the packs, as did also the old interpreter, CONCEPCION, who was worn out and unable to keep up. His absence was, afterward, a source of much trouble. During all this dark night we climbed steep mountains covered with loose stones, or struggled through gloomy cañons, following our Chiricahua guides, who seemed perfectly at home. Sometimes we almost despaired and felt like succumbing to the fatigue that nearly overpowered us; but at such moments the thought of what dawn should bring buoyed us up and revived our drooping spirits.

At length, just before daylight, we drew near the high, rocky point where the camp was said to be, and the command was divided so as, if possible, to surround it. After some delay we crept forward, scarcely breathing as we moved; and, to some of us, there came strange sensations, as in the dark, still night, we thought of the isolation of our position, for, in this wild and unknown region, we were led on by allies who had often proved how crafty and bloodthirsty they could be. But success seemed almost assured, and exultation was taking the place of these feelings, when some burros in the herd of the hostiles began braying and, like the geese of ancient Rome, aroused the camp to a sense of its danger. Some of the "broncos," running out to try and carry off their stock, were fired upon by the scouts, who then rushed into the rocks near by and opened a lively fusillade, accompanying it with their shrill cries of defiance. Answering shots came from the camp, close at hand in a cluster of large rocks, that we afterward saw formed a stronghold capable of defense by a very few men. The behavior of the scouts at this juncture was very disappointing. A rush into the camp would have insured the capture of the squaws and children at least, probably after a bloody fight. But they scattered through the rocks and, deaf to all appeals, allowed themselves to be held in check by the fire of the hostiles, who finally escaped in the darkness, leaving behind all their stock, provisions and blankets. The officers could do nothing, for Apaches always fight in their own way, and instead of following one who tries to lead them to a charge, they look upon him as a fool and unworthy of confidence. In this case it was impossible for us to tell friends from foes; every time I myself attempted

to shoot I was stopped, because I was about to shoot a scout; at last, in desperation, I fired two shots at some figure dimly seen. Who he was I never knew, for I missed him.

In this affair one "bronco" was slightly wounded. We suffered no casualties whatever. Soldiers in the place of the scouts would have behaved much better, but then a sufficient number of soldiers could never have been gotten so close without being discovered. Daylight before the end of the skirmish might have changed matters somewhat, but when there was light enough to see, the band had all escaped and were scattered through the mountains, and the scouts, worn out by eighteen hours' continuous marching, were no longer able to follow. It would have been useless to do so anyway, for once aware of our presence there would have been no chance of catching the hostiles until they had again settled down.

From what I saw of the Chiricahua scouts on this occasion, and subsequently when we had talks with the Indians, I am satisfied that though they fired a good many shots, yet they had little desire to kill, in spite of their wish to see the war ended by the surrender of the renegades. These men worked too hard and were too faithful under temptation to give any reason to suspect them of treachery. But it does not seem unreasonable to believe that they did not strongly desire the death of people belonging to their own tribe. They had not only been their friends, but some were relatives. Moreover, in their eyes, the hostiles had committed no crime, for they themselves had likewise been on the war-path. They wanted peace, but not at the expense of much bloodshed. The White Mountain scouts were too much afraid of their Chiricahua brethren to oppose them, so they have not been considered in the above statement. It was one of the many difficulties of General CROOK's task that, at that time, there seemed to be no one except these Chiricahua scouts who could follow the hostiles to their retreats in this unknown region.

Disappointment at the result of the fight was, however, soon forgotten in the search for food. Supplies were not lacking, but the white men, exhausted by their long march without food, found little to tempt them in the lean horse meat without salt, and the roasted heads of mescal which lay around the abandoned camp. The meat, toasted on ramrods, was about as satisfactory as pieces of gunny sack, while the sweetness of the mescal soon produced nausea. The exhaustion of the command was shown by the way the men threw themselves anywhere on the ground to sleep. Some scouts were sent back to bring up the party with the pack-mules, but they went to sleep on the road and nothing was heard of the train. In the

afternoon an old squaw came in with a message saying that NATCHEZ and GERONIMO wanted to have a talk outside the camp. From what she told him, Captain CRAWFORD believed that they were ready to surrender; the correctness of his belief was shown by statements made by these chiefs to an officer eight months later, when on their way to surrender to General MILES. The absence of the interpreter, however, compelled a delay, and the meeting was appointed for the next morning. The squaw reported that her people were without food, begged some for herself and departed, leaving us very hopeful for the morrow. Having now nothing to fear from the hostiles and being worn out, the scouts relaxed their usual vigilance and all lay down to sleep by the side of the big fires, which had been built to keep off the bitter cold of the night, which caused much suffering. All the white men and most of the scouts were without blankets or covering of any kind. A heavy fog made the morning of January 11th very obscure and, just as it was getting light enough to see, the Indians shouted out that Mexicans were coming. Lieutenant MAUS, Chief of Scouts HORN and I, who were awake at the time, ran forward to prevent any trouble, at the same time calling out who we were. But shots from the advancing party drove us into the rocks, where the scouts had taken refuge. Some of them had commenced returning the fire, but this was soon stopped.

Our camp lay on the left bank of the Haros River, which was in sight, and was about fifty miles southwest of Nacori. The ridge on which it was located fell off abruptly to the river side in a high, rocky bluff, along the edge of which ran a line of big rocks; outside of these rocks was an open space containing a few scrubby trees. We had nearly all been sleeping in this open space, but the firing caused it to be speedily vacated. In the dim light we could not tell who our assailants were, but an idea soon began to prevail that they were Major DAVIS'S scouts who had taken us for hostiles. The thought of being killed by our own friends was agonizing, and we loudly called out the names of the officers on duty with DAVIS'S battalion. In a few minutes the firing ceased and the voices of Mexicans were heard crying out. HORN answered in Spanish, and a small party appeared in the open space near us. It had now grown light and the white men showed themselves, while HORN called out to the leader of the band, then about twenty-five yards from us. The scouts still lay hidden in the rocks; they did not trust Mexicans.

Captain CRAWFORD had been asleep when the first alarm was given, and it was not thought necessary to stop and wake him.

When the firing began he, like the rest, ran into the rocks. He now appeared, standing on a high rock, conspicuous above every other object. It is impossible to tell how he viewed the situation, though he must have known that in so exposing himself he ran a great risk, no matter under what circumstances the attack had been made. Thinking, no doubt, that by exposing himself to full view in his uniform, he might save us from being again attacked, he did not hesitate, but climbed the rock and stood waving a white handkerchief in token of peace. In a moment a single shot rang out, followed by a volley. CRAWFORD fell, struck, the scouts said, by the single shot. The Indians returned the fire and, for several minutes there was a hot fight. HORN was wounded by the leader of the Mexicans, who was dropped dead where he stood by a Chiricahua named BENDER, who lay at our feet.

The fall of CRAWFORD was not known at first to anyone except some scouts near him. Going to him, as soon as the news became known, he was found lying senseless at the foot of the rock with a ghastly wound in the side of his head, and his brains scattered over the ground near by. Some Indian had bound his head with a handkerchief, and the man who had shot him was already lying dead not twenty-five yards away. The captain was given such aid as was possible at the time; and then our attention was turned to the puzzling position in which we were placed.

The command had fallen to Lieutenant MAUS, the next in rank, who had to choose between continuing the fight or terminating it as soon as possible by acting strictly on the defensive. The latter course involved two considerations. The first was that, if the Mexicans believed us to be hostile Indians, we could defend ourselves until we could make them understand who we were. On the other hand, if they really knew us, we could demonstrate to them our ability to defend ourselves and show them how useless it was to keep up the fight. There were many good reasons why the offensive should not be taken, the principal one being the doubt that then existed as to whether we were being attacked by mistake or not. The first attack seemed to be due to a mistake. During the progress of the second, there were no means of determining whether the mistake still existed or not. As one looks back at any affair, things have a different appearance to him, and he wonders why he did not see them in their true light at first. In this case many incidents tended to show that the Mexicans were not acting in good faith. But at the time little thought was given to that; for we were under fire, and the situation was so unexpected and puzzling that every point was

not given due weight; in fact, outside of one's individual experience very little was known. Afterward, when the different stories were put together and the ground looked over, calm reflection made us believe that the second attack was no mistake. It was not until nearly two days after the fight that the treacherous capture of Lieutenant MAUS and the interpreter, CONCEPCION, removed all doubt.

The situation was such, however, that had we then certainly known that we were being intentionally attacked, there would have been little choice about our course. The Mexicans were evidently much superior in numbers—two to one it turned out. They occupied a line of hills from three to five hundred yards distant that commanded the ground between us and afforded them a very strong position. At this time we were so far down in Mexico that it afterward took three weeks marching to get us back to the border. The Mexicans were in their own country, and our only dependence was on the scouts, who were so hated, both as Apaches and also as American soldiers, that there would have been no difficulty in securing reinforcements against them unless some amicable arrangement was made. We were entirely without rations and almost without ammunition; to have tried to fight our way out of Mexico would have meant that the command would have had to scatter and make its way home as best it could. This would have made it necessary to abandon our wounded, and probably all the pack trains that were scattered through the mountains on their way to us. Had we not made peace there could have been little doubt that the Chiricahua scouts would have joined the hostiles, who were then in sight across the river looking on.

During the fight a hurried consultation was held between Lieutenant MAUS and myself, in which these points were touched upon. We did not feel sure of the meaning of the conduct of the Mexicans; we had not given up the hope that the hostiles would surrender after all, and we did not wish to abandon the attempt to bring them in. So much had been sacrificed that we felt it our duty to continue the effort, especially as there still remained a hope of success. These reasons have been given fully, because there has been some criticism on the conduct of the command in this affair among both army people and civilians, who seem to think that all we had to do was to attack the Mexicans in their position and avenge CRAWFORD'S death. Their judgment has been hasty and unjust. They have not put themselves in the place of officers suddenly called upon to face a situation unparalleled in the history of the army; in which there lay no alternative between the course adopted and ruin; and which

would have involved the betrayal of the trust reposed in those officers had they tried, with the knowledge they then possessed, to assume the role of avengers.

Our course determined upon, there still remained the task of conducting the defense, at the same time controlling the fire of the scouts and continuing the calls to the Mexicans to stop firing. The party that had advanced so near us was soon disposed of; but the main body kept up a heavy fire from the hills and several attempts were made to flank us, which were, however, frustrated by the scouts. We were strongly posted among the rocks, but the position was entirely open in rear, and would have been untenable had the Mexicans succeeded in getting a party on that side. The shots finally becoming less frequent, we could plainly hear their voices as they called to each other, and their failure to answer us began to be very suspicious. Finally they replied and, when the firing ceased, Lieutenant MAUS and HORN went out to meet a party half way. An understanding being reached, quiet was restored, and we looked after our wounded. Captain CRAWFORD'S case was seen to be hopeless; his wonderful vitality alone prevented his instant death. On examination, one arm was found to be broken near the shoulder, the result of his fall from the rock. One scout was found to be badly wounded through both legs. Two others had slight wounds. HORN was suffering from an ugly flesh wound in the left arm. We had been very uneasy about the party with the mules, but they arrived soon after the close of the fight, bringing rations and other supplies. They had been on the way to us when the firing began, and were then close to the Mexican position. The packers and scouts refusing to proceed, they had taken refuge behind a hill and, fortunately, had not been discovered.

Parties of Mexicans came over to carry off their dead, four of whom lay in our camp, their major and a lieutenant being among them. It is not known how many more were killed. The scouts always claimed at least seven in all. Five men were known to be badly wounded, as Dr. DAVIS dressed their wounds; some of them he thought would probably die.

Looking over the ground and hearing the different stories, we saw that there was little cause to believe that the Mexicans thought we were hostile Indians when they shot CRAWFORD. The man who fired the fatal shot was just twenty-eight paces distant; the Captain had a brown beard and wore his uniform, so that he looked altogether unlike an Indian. The experiences of Lieutenant MAUS, Chiefs of Scouts HORN and HARRISON, and of Hospital Steward NEMECK, like-

wise confirmed us in our belief. But all lingering doubts were dispelled by the conduct of the Mexicans on the 12th, when they treacherously captured Lieutenant MAUS and CONCEPCION, and compelled them to ransom themselves with six mules. That plunder was their object in attacking us is certain. They saw only a few white men, and the fire of the scouts was so weak at first that they had no reason to believe us a large party.

Our assailants were not regular troops, but were a body raised in the State of Chihuahua to fight the Indians. They had been seventeen days on the road, and had with them no animals except a few burros. Their rations and blankets were carried on their persons. They were a hard-looking set; dressed in cotton clothing and wearing moccasins, some of them rawhide sandals, they had little appearance of being soldiers; but at the same time they seemed well suited to following Indians in a rough country. A temporary, and perhaps irresponsible organization, they would, if successful in killing us, have had little trouble in evading all responsibility for their acts. The locality of their crime would have made the detection of the perpetrators almost impossible. Their version, as published in official reports, shows that they would not have been wanting in excuses. They sturdily claimed that we were in league with the hostiles; that they had been following our trail for days, and that the mules (all marked U. S.), taken as ransom, had been stolen by the Indians from Mexicans. With regard to their following us, it is only necessary to say that their trail which we saw came directly from the east, while ours came from the west; they had never followed our trail at all, but had been guided to us by the light of our fires.

It has been said that the hostiles were spectators during our fight with the Mexicans. How they must have enjoyed it! As their enemies were engaged in deadly strife before their eyes, it must have seemed that Providence was looking out for them, and no doubt crafty old GERONIMO took advantage of the situation to work upon their superstitious feelings, and to encourage them to follow still further their bloody career. It must strike us, too, that it was a strange mischance that caused these two commands to meet at this particular time, and in a country perhaps never before traversed by similar parties. Different as they were, either might have done good work but for the presence of the other.

The experiences of the expedition after the fall of CRAWFORD were strange and interesting; but we will not attempt to tell of them, for the story is long and complicated. We cannot, however,

lose sight of it for a few days longer, though nothing except a brief and incomplete outline of events will be attempted. The camp was moved a few miles on January 13th, and no more was seen of the Mexicans. Negotiations with GERONIMO were reopened, which resulted in the surrender of part of his band, and the promise of the remainder to meet General CROOK on the border, which they did in March. For many reasons the command was obliged to return to the United States, and its march was continued till the supply camp at Lang's Ranch, N. M., on the boundary line, was reached on February 1st. Orders were given by General CROOK for a similar withdrawal of Major DAVIS's battalion from Mexico and, for a time, operations were suspended.

The transportation of our wounded was a serious trouble. Incessant rains not only increased the discomforts already existing, and caused much actual suffering on account of the lack of shelter and clothing, but it also made the rough country almost impassable. The litters, composed of canvas stretched between bundles of canes, had to be carried by hand; the canes were so pliable that the litters were clumsy affairs, requiring eight men to carry one of them. Then the moccasins went to pieces in the wet and left many of us barefoot in this stony region. In a few days, however, DALY's train met us and brought us more comforts. A new litter was then made for the Captain, and as pine poles were now available they were substituted for the canes, and one end of the litter fastened to a mule; on account of the rough trail the other end was still carried by hand. The badly wounded scout was rigged upon a mule and caused but little more trouble.

A week went by without any sign of consciousness or of suffer- on the part of Captain CRAWFORD who, gradually growing weaker, on the 18th of January passed away so quietly that the end was not perceptible to those watching by his side. Four days later his body was deposited in the dreary little burying ground at Nacori; the hope that this was only a temporary resting place was soon realized by the action of General CROOK in sending a suitable party to bring his body back to the United States. He was finally buried at the home of his brother at Kearney, Nebraska, where a monument erected by his brother officers now marks his grave.

The killing of Captain CRAWFORD gave rise to much feeling against Mexico and some talk of war upon that country. The matter was taken up by the State Department, but was finally dropped without action on the part of our Government. The reasons for this course were doubtless good, but it is much to be regretted that they

have never been made public; for there is a belief that our country has allowed one of its best officers to be murdered while doing his duty, and has failed to take steps to punish his assassins.

The attack of the Mexicans not only caused the death of a valuable officer, but it also prolonged the resistance of the hostiles for eight months. There is little doubt that they would have surrendered in January but for this affair; it was September before they finally did so. In his report General CROOK says: "There is reason to believe that had he (CRAWFORD) lived, he would have received the unconditional surrender of GERONIMO'S and NATCHEZ'S bands;" and again: "He was thoroughly known to all the Indians, and had their confidence. It is believed that he was the only white man besides myself who could have induced the hostiles to surrender." When we reflect that after January probably more than a hundred people were killed by these Indians, and when we also consider the incalculable losses in property, both to the Government and to private parties, and remember that during all these months no one was safe in a region containing hundreds of square miles, we can realize that the importance of that little fight is not to be measured by the number of slain.

It would be well if all of us could keep in our minds the memory of this devoted and chivalrous soldier, whose whole life was one long sacrifice, and whose death was the direct result of his efforts to save others. Such characters are not common. Let us try to remember this one as our ideal of what a true man should be. Though we may never be called upon to face difficulties of the kind that confronted him, yet the elements of character that enabled him to overcome them and to win the love and respect of all who knew him, will tell in all walks of life; and though such men sometimes fail, yet the name they leave behind them is worth far more than the greatest success.

CAVALRY UPON THE FIELD OF BATTLE; BY LIEUTENANT-COLONEL PREJENTSOFF, OF THE GENERAL STAFF OF THE RUSSIAN ARMY.

TRANSLATED FROM THE RUSSIAN,
BY FIRST LIEUTENANT GEORGE W. READ, FIFTH CAVALRY.

IV. THE MODERN EPOCH.

OF late campaigns, the most instructive battles in regard to the question under discussion are those of Königgrätz, July 3, 1866, and Mars-la-Tour, August 16, 1870, in both of which the cavalry was concentrated in masses upon the field. An analysis of the cavalry operations in these battles, after our statement of the fundamental rules observed by such great commanders as FREDERICK THE GREAT and NAPOLEON, makes it possible to arrive at conclusions based upon facts.

CAVALRY IN THE CAMPAIGN OF 1866.

In the Austro-Prussian campaign of 1866, we do not observe such considerable masses of cavalry in the opposing armies as in the time of NAPOLEON I. The greater part of the Prussian cavalry was attached to the infantry divisions by separate regiments or brigades, while the main mass of the Austrian cavalry formed a number of independent divisions.

The campaign of 1866 opened with the invasion of Austrian territory by three Prussian armies; the Army of the Elbe and the First Army advanced from Saxony and Lusatia on the north and concentrated at Münchengrätz and Gitschin; the Second Army moved through mountain defiles from Silesia into Bohemia to Trautenau, Braunau and Nachod. Each army comprised several corps. Each corps was composed of two infantry divisions, with artillery and a battalion of chasseurs, pioneers and train; and to each infantry division was added a cavalry regiment of four squadrons. In the First Army, moreover, the Second Corps had a separate cavalry brigade with a battery (VON DER GOLTZ) in addition to the regi-

ments of divisional cavalry. A cavalry corps of two divisions (the first under General VON ALVENSLEBEN and the second under General HANN), comprising five brigades, formed the reserve cavalry (in all forty-one squadrons and five batteries). In the Second Army each corps, excepting the Fifth, had a cavalry reserve, as follows: to the Guard Corps was attached a guard cavalry brigade with a battery (VON BREDOW); to the Sixth, a regiment. The reserve cavalry of the Second Army consisted of a separate cavalry division (General HARTMANN), comprising three brigades: the first, cuirassiers; the second, light; and the third, landwehr; in all, twenty-four squadrons and two batteries.

The assignment of the cavalry in the organization of the Second Army conformed to its anticipated operations in the mountain defiles, in view of which it was attempted to make the corps more independent. In the Austrian army, to each corps consisting of four independent brigades (a brigade usually comprising two line or frontier regiments of three battalions each, a chasseur battalion, and a four-pounder battery), was added a cavalry regiment of six squadrons. The remainder of the cavalry formed five separate divisions: two light (the First, General EDELSHEIM, thirty squadrons, twenty-four guns; the Second, Prince THURN and TAXIS, twenty squadrons, sixteen guns); and three heavy, denominated reserve, (the First, Prince SCHLESWIG-HOLSTEIN, twenty-six squadrons, sixteen guns; the Second, General ZAITSEK, twenty-six squadrons, sixteen guns; the Third, General Count COUDENHOVE, twenty-seven squadrons, sixteen guns). To this must be added a division of Saxon cavalry (General VON FRITSCH) of twelve squadrons and six guns. Bearing in mind that in case of necessity the commander-in-chief of the Austrian army could add cavalry divisions, regiments and brigades to those corps which might need them, nothing can be said against such an organization. We see, indeed, that with the opening of the campaign, the First Light Cavalry Division accompanied the First Corps, designated to operate against Prince FREDERICK CHARLES.

In all the fights preceding the battle of Königgrätz, frequent skirmishes between small bodies of cavalry are noticed; but the participation in battle of more important bodies of cavalry is everywhere absent. At Münchengrätz and Gitschin, where Prince FREDERICK CHARLES had against him the corps of Clam-Gallas and the Saxons, in all about 60,000, the Prussian cavalry took a very limited part, failing even to pursue the enemy after the victory; nor does there seem to have been any effort on its part to establish firm connection with the Second Army.

Neither was the Austrian cavalry distinguished by a special spirit of enterprise; in the earlier collisions it experienced the efficiency of the small-arms fire of the enemy and, thereafter, sought to avoid encounters with the Prussian infantry.

One cannot fail to observe that the Prussian cavalry, although in small bodies, attacked energetically and with great wickedness in all the skirmishes in which it took part. At Nachod two Prussian dragoon squadrons, in view of the Sixth Austrian Corps, quickly formed platoon columns in each squadron, without dreaming of retreating, upon chancing within effective range of artillery fire; afterward they deployed rapidly and bravely attacked the columns of General RAMMING, in order to give time for the first Prussian division of STEINMETZ, approaching from the rear, to issue from the defiles and form in order of battle. The Prussian dragoons galloped upon the cuirassier brigade of Prince SOLMS marching at the head of the Austrians, broke through the first line, and being repulsed, formed again and attacked the enemy anew, thanks to which his advance was checked.

On another occasion, June 28th, at Skalitz, this same Austrian brigade attacked the rear of a force under General STEINMETZ, which was making a turning movement against the left flank of the Austrians. The Prussian infantry turned about and met the enemy's cavalry with the fire of the deployed troops. The brigade of Prince SOLMS was repulsed; taking advantage of the moment, a Prussian uhlan regiment attacked the reserve of the brigade but, in its turn, was forced to fall back. A guard brigade of heavy cavalry with artillery was sent by the Prince of Wurtemberg from the Fifth Corps at Braunau to the support of General STEINMETZ. Upon arriving, it formed on the right flank in order to menace the left flank of the Austrians. This resulted in the retreat of the Austrians, and in securing to the Prussians the defile in front through which the Sixth Prussian Corps and the cavalry of the Second Army immediately afterward passed.

We proceed to an examination of the use of the cavalry of the adversaries at the battle of Königgrätz, where it was concentrated in considerable masses.

The Austrian army occupied a position (see plan) behind the small brook Bistritz, with the troops formed in a broad semi-circle to the west of Königgrätz. The right flank occupied the village of Maslowed; the left, Nieder-Prim and Problus; the reserves were disposed at the villages Chlum, Rosberitz and Wsestar. The Saxon cavalry and the first light cavalry division of General EDELSHEIM

were upon the extreme left flank, and were charged with securing the flank and the lines of retreat to Königgrätz and Pardubitz, and also with resisting the debouching of the Prussians from the bridge at the village of Néchanitz. At the extremity of the right flank, between Sendrasitz and Lochenitz, to observe the crossings of the Trotina and the bridges across the Elbe, was placed the second light cavalry division of Prince THURN and TAXIS. The three heavy cavalry divisions were placed behind the center at the following points: The first, Prince SCHLESWIG-HOLSTEIN, between Chlum and Swèti; the second, General ZAITSEK, in the rear line, to the left of the road Königgrätz-Gitschin; the third, Count COUDENHOVE, somewhat in advance of the second, behind the Tenth Corps (GABLENZ), which defended the heights of Langenhof; the third division was charged with the support of the Tenth Corps in case of need.

The little river Bistritz, from thirty to forty paces in width, covering the front of the Austrian position to the west, was a great obstacle for the offensive, as even in good weather it was difficult to ford, and in a rainy season was passable only by bridges. On the east, the field of battle was limited by the Elbe, entirely unfordable and having very few bridges. To the northeast, the river Trotina empties into the Elbe; its course is for the most part marshy and therefore it served to partially secure the right flank of the position. The streams Bistritz and Trotina, flowing for some distance parallel, are, in the northern part of the position, between the villages Benatek and Racitz, two and two-thirds miles apart; and this space afforded an easy approach to the right flank of the position. All the space between the Bistritz and the Elbe has a rolling character; in some places it is intersected by ravines, but there are a sufficient number of good roads and cover for troops. Commanding points are found on the line Hradeck-Problus-Lipa-Chlum-Maslowed and Horenowes, whence the ground slopes steeply to the west and north, while the slope to the Elbe is five and a quarter miles in extent. Nearly perpendicular to these crests are the small parallel ridges of Horenowes and Maslowed, whose steepest sides slope toward the northeast.

The villages with buildings of brick or clay, and the groves found at several places on the battle-field, surrounded by roads dug deep into the earth, together with a multitude of ditches, rendered the position quite cut up and not fully suited to cavalry operations. Fields covered with a dense growth of high corn quite concealed the difficulty of passing the obstacles of the locality which presented from afar the appearance of a smooth surface adapted for a cavalry attack.

In the center, the height of Chlum commanded by fifty feet all the country lying in its front and formed the tactical key of the position. The height of Horenowes covered the right flank on the northern side, and the heights of Hradeck and Problus presented solid points of support on the left flank of the Austrian position. While impeding the operations of the offensive against the front and left flank, the position at Königgrätz had convenient approaches on the right flank, the ground in front of which was entirely favorable for cavalry operations.

The action against the Austrians was begun by the First Army and the Army of the Elbe approaching the Bistritz at 7 o'clock on the morning of the 3d of July, deployed on the line from Néchanitz to Bénatek. The Prussian center was charged with forcing the passage of the Bistritz at Sadowa and with the attack of the heights at Chlum. Here the Second Prussian Corps began the battle, the cavalry brigade of VON DER GOLTZ being placed upon the right bank of the Bistritz. The cavalry corps of Prince ALBERT was at first directed to the right flank in the direction of the village of Sucha but, at the first firing, it was brought up to the battle lines and placed on both sides of the road Königgrätz-Gitschin, near the village Dub, behind the center of the Prussian lines. At this time the divisional cavalry of the Second Prussian Army, marching for the most part in advance of its infantry, was directed from the northwest by the shortest roads to the right flank of the Austrian position. The cavalry division of HARTMANN, however, constituting the reserve cavalry of the Second Army, did not receive the order of its Commander-in-Chief in time; it had advanced at day-break in the direction of Gorlitz, hence the new order arrived too late to change its movement.

Such were the positions of the cavalry of the adversaries when the Prussian King gave the order to make a decisive attack. Just as the action began, the cavalry brigade of VON DER GOLTZ was sent to the right flank to the Army of the Elbe, but was immediately afterward called back and placed behind its corps, which met a serious resistance from the enemy. About 10 o'clock in the morning, the division of ALVENSLEBEN was detached from the cavalry corps and moved to the rear of the Army of the Elbe, behind the reserves of which it passed the greater part of the day in complete inaction. Official sources attribute the sending of the division of ALVENSLEBEN to the right flank to the incorrect understanding of orders; but in consequence of this, the center was unnecessarily deprived of so considerable a body of cavalry at the most important moment.

The object of all the operations of the Prussians on the right flank against the Saxons, was to dispossess the latter of the center of the position, but the Saxon cavalry and the light cavalry division of EDELSHEIM, menacing in their turn the right flank of the Prussians, prevented the attack of the latter and thus made it possible for the Saxons to be strengthened upon the heights of Problus. It cannot be said that this Austrian cavalry showed any decisive activity; it maneuvered more with the object of a demonstration, threatening the enemy while taking care not to come near him on account of the efficient small-arms fire.

At midday the attack of the Army of the Elbe and of the First Prussian Army was stopped along almost the entire front, as the Austrians, being at this time of equal strength with their adversaries, showed a strong resistance at all points. In consequence of the expenditure of the reserves and of the engagement of almost all their troops except the cavalry, the situation of the Prussians was becoming more difficult and perilous. The arrival of the main body of the Second Prussian Army, and especially of the First Guard Division of HILLER and the Sixth Corps, relieved the danger of the First Army and Army of the Elbe, and made it possible to renew the battle. The regiments of divisional cavalry, moving in advance of the Second Prussian Army, took part in the fight immediately upon arriving on the battle-field and made a series of noteworthy attacks against both the infantry and cavalry of the enemy. A hussar regiment of the advance guard, approaching Racitz, dismounted in order to attack that village, which was occupied by Austrian infantry, but was repulsed by the troops of the Sixth Austrian Corps; a little further on, the Prussian uhlans and dragoons attacked unsuccessfully some Austrian battalions, which happened to be in disorder; another cavalry attack by three squadrons, north of Horenowes, initiated by General HILLER against a retreating Austrian battalion was also unsuccessful; the battalion formed squares and received the cavalry with volleys.

The Prussian Guards made an almost unimpeded advance against the right flank of the Austrian position. But upon reaching the village of Maslowed, the Prussian infantry was discovered by the Austrian first reserve cavalry division, which immediately moved in double columns by brigade to meet the enemy. The division of HILLER, observing the approach of the cavalry, instead of forming square, deployed and received it with a sustained fire; the Austrian squadrons turned back and retreated in disorder in the direction of Chlum and Swêti. Between 1 and 2 o'clock the Prussian cavalry

brigade of WICKMAN moved upon the line Lochenitz-Nedelist against the second light cavalry division of TAXIS, which was at Trotina, with the object of cutting its line of retreat.

The brigade was formed in two lines, having in the first line a hussar regiment in deployed order; in the second, in echelon from the left flank, a dragoon regiment in line of platoon columns with full intervals. The first Prussian line advanced to the attack, without having ground scouts in front, on account of which the hussars fell quite unexpectedly into a gully, and were almost annihilated before the dragoons could support them. Thus the second light cavalry division of TAXIS arrested the progress of the Prussians but, fearing for the bridge across the Elbe, with the guarding of which it was charged, did not pursue them, and withdrew somewhat to the south.

From what has been stated it is seen that the bulk of the cavalry of the Second Prussian Army was used in small bodies, except the reserve cavalry division, which was at first too far away from the battle-field; upon joining its infantry, this division was placed between the corps and maintained connection, both between them and with the left flank of the First Army. In the course of the fight a crisis, disadvantageous to the Austrians, finally appeared, and Master of the Ordnance BENEDEK gave the order to retreat; the cavalry was charged with covering the army departing from the field.

Thus, it was only at the close of the battle that the cavalry was released from inactivity and allowed to show itself. When the retreat of the Austrians was observed by the Prussians, the cavalry of the First Army immediately received orders to advance, which, for want of fords across the Bistritz, could not be done with any great rapidity. The only part of the cavalry corps with the center was the second division, under HANN, which was directed sooner than the others to pursue the Austrians. The first cavalry division, under ALVENSLEBEN, sent by mistake to the Army of the Elbe, was, at this time, on the road from Lubno to Stresewitz. The third light cavalry of HANN's division, formed in line of squadron columns, stretched through Sadowa; upon its right flank was a dragoon, and upon its left a hussar regiment; behind it, at a distance of 1000 paces, followed another brigade (a hussar, a dragoon and an uhlan regiment) of the same division, which crossed the Bistritz at Sowetitz. The retreat of the Austrian infantry was covered upon the right flank by the second light cavalry division of Prince TAXIS, and upon the left by the first light cavalry division of Baron EDELSHEIM and the second Saxon cavalry brigade.

The first reserve cavalry division was at Wsestar, and the third reserve cavalry division was 2000 paces to the east of Stresewitz, when the enemy's army showed itself in separate masses, part south of Stresewitz and part upon the high-road between Lipa and Rosberitz. The Austrian reserve cavalry divisions immediately dashed upon them, and by their self-sacrifice delivered the army from the ruinous consequences which usually accompany the appearance of the enemy's cavalry at such a moment.

Having arrived at Stresewitz, the main body of the Second Prussian Cavalry Division (HANN) was drawn up as follows: In the first line, three squadrons of dragoons; in the second line, a regiment of uhlans, having three squadrons to the right and one squadron to the left of the dragoons; behind them, in echelon from the right flank, followed a dragoon regiment and two squadrons of hussars; the remaining two squadrons of the hussar regiment were upon the left flank of both the leading lines. The cavalry division of ALVENSLEBEN, with regiments far apart, moved also to Stresewitz by a ravine leading to the west of Problus; at the head moved the dragoons of the Guard, and after them, the uhlan regiment of the Guard.

The commander of the Austrian third reserve cavalry division, upon receiving the first news of the approach of the enemy's cavalry masses, ordered his division to attack. The division was formed in three lines, having a cuirassier regiment in the first and second and two cuirassier regiments in the third; the regiment in the second line was in echelon behind the right flank, and the regiments of the third line in echelon behind both flanks in regimental columns. The three squadrons of Prussian dragoons found in advance at first turned back, but afterward, being reinforced, renewed the attack, whereupon there ensued a stubborn cavalry fight, during which the Prussian infantry fired without distinction both upon their own troops and upon the enemy. At the same time, a little to the south, the Austrian uhlans attacked the Prussian dragoon regiment of the Guard, in which skirmish the regiments of ALVENSLEBEN'S division took part. The fight was decided by the shock of a cuirassier regiment of the third line of the third reserve cavalry division of the Austrians. The Prussian cavalry turned back to the Bistritz, pursued by the Austrians.

Another cavalry engagement took place almost simultaneously with the foregoing between Langenhof and Wsestar. At Wsestar was the brigade of Prince SOLMS, having three regiments in line of columns, and to the right of it was posted the brigade of SCHINDLÖCKER in brigade columns (both brigades of the first reserve cavalry

division). When eleven squadrons of the second Prussian cavalry division were marching near the high-road in the direction of Wsestar, the brigade of SCHINDLÖCKER attacked them under the strongest flank fire from the Prussian batteries at Chlum. Riding through the intervals of its batteries, the brigade deployed to the north of the road fronting northwest, having a cuirassier regiment in each of its two lines. An Austrian hussar regiment of the First Corps had still earlier been moved along the road, and after deploying to the right, it dashed upon the flank of the Prussian cavalry at the moment when the brigade of SCHINDLÖCKER attacked in front. Both Prussian lines were broken through, and after a hand-to-hand fight were forced back to Langenhof.

Soon after this attack, a Prussian hussar regiment of the First Corps appeared upon the heights between Langenhof and the high-road; the brigade of SOLMS moved against it, having in the first line a cuirassier regiment in line of columns, and in the second line, in echelon, another cuirassier regiment. The Prussian hussars turned back without receiving the attack. The brigade of SOLMS was afterwards assembled upon the low ground to the west of Langenhof and stood for a quarter of an hour under a murderous fire; but the Prussian cavalry did not again show itself either here or at Stresewitz. Beginning at half-past four o'clock in the afternoon, all parts of the Austrian army were in full retreat to the Elbe, except the second and first light and the second reserve cavalry divisions, the two former on the right and left flanks and the latter in the center. The second reserve cavalry division of General ZAITSEK remained up to 3 o'clock at the point at first occupied, to the southwest of Briza, but between 3 and 4 o'clock, after the retreat of the Saxons and of the Eighth Corps, was stretched to Klacow.

Like the other Austrian cavalry divisions, the first light cavalry division of Baron EDELSHEIM was not inactive; it covered the retreat of the troops in the most energetic manner; thanks to it and to the second reserve cavalry division, the left wing of the Austrian army was delivered from a persistent pursuit. The cavalry suffered the following losses in the battle of Königgrätz:

AUSTRIAN.

	Officers.	*Men.*	*Horses.*
Killed	14	303	1055
Wounded	47	301	235
Missing	3	311	850
Total	64	915	2140

PRUSSIAN.	*Officers.*	*Men.*	*Horses.*
Killed	6	64	
Wounded	35	437	402
Missing	...	5	
Total	41	506	402

From what has been stated, it is seen that the efforts of the Prussian cavalry to develop the success of its infantry upon the field of battle by attacks upon the retreating enemy, were paralyzed by the activity of the Austrian cavalry; although it must be observed that these efforts were not especially energetic and persistent, and that the Prussian cavalry posted at certain points did not attempt to exert itself at others, but on the contrary, took a waiting attitude entirely unsuited to the occasion. The retreat of the Austrian army across the passages of the Elbe and especially to Königgrätz itself, the gates of which fortress were not opened for a long time, eventually turned into a disorderly flight, and not to have taken advantage of this, not to have driven the enemy to the exhaustion of his strength, was a great error.

In general, in analyzing the use of the cavalry masses of the adversaries in the battle of Königgrätz, one cannot but see that the Commanders-in-Chief of the Prussians and Austrians did not know what to do with them during the action. It seemed as if the Prussian cavalry corps should have been designated for operations at the decisive moment of the battle, while we see quite the reverse; before the battle, while following at the tail of the army, it moved in a concentrated formation; but at the time when all the parts of the First Prussian Army entered upon a battle with an enemy of equal strength, and when the coöperation of the cavalry mass might become necessary at any moment, a whole division was detached from the Prussian cavalry corps and sent to the right flank well nigh off the battle-field.

About 1 o'clock the situation of the First Prussian Army was very serious, not to say critical; the Commander-in-Chief had almost decided to retreat; yet, meanwhile, the cavalry corps stood in complete inaction behind the center, and nobody seemed to think of using it against the left flank of the Austrians with the object of drawing the attention of the enemy to the flank opposite that upon which the Second Prussian Army was advancing.

Nor did the Prussian cavalry of the First Army coöperate with the parts of the Second Army when they were at first sustaining an unequal struggle with the considerable forces of the Austrian right flank.

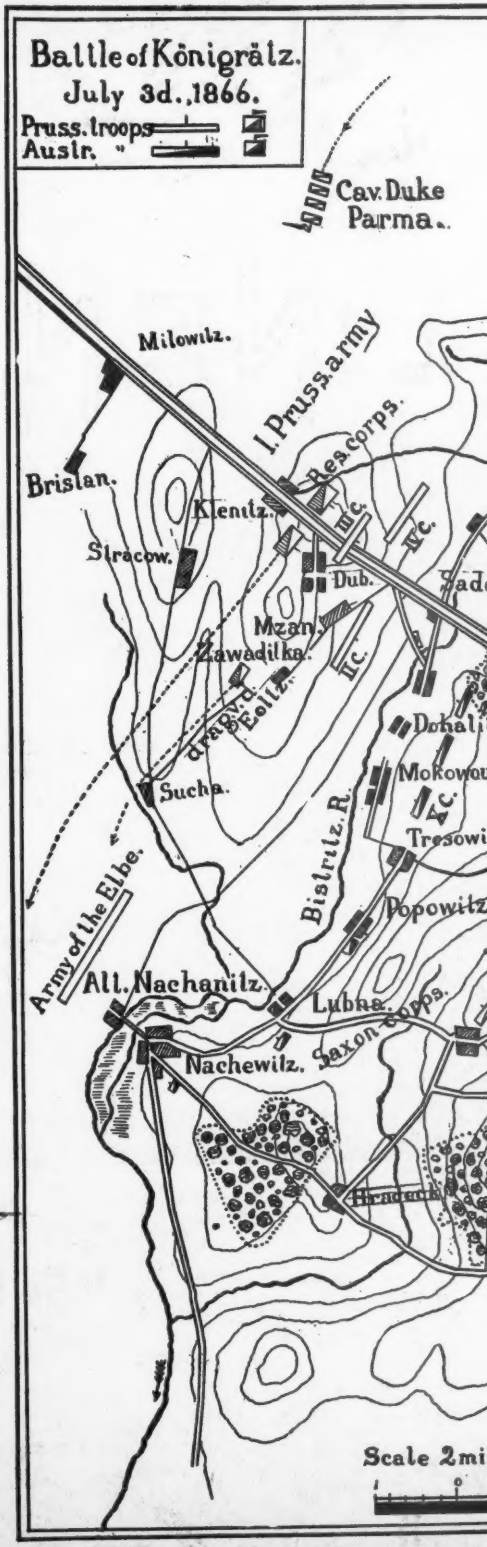
The regiments and brigades of the Prussian divisional and corps cavalry took part at many points of the battle-field, although in a majority of cases with loss to themselves. The regiments and brigades of the Prussian cavalry did not act with the object of supporting a certain infantry body or a battery, or to assist its attack, but were only made use of in case of special confusion of the enemy or of the retreat of some of his troops, and then, without infantry or artillery support to secure their success.

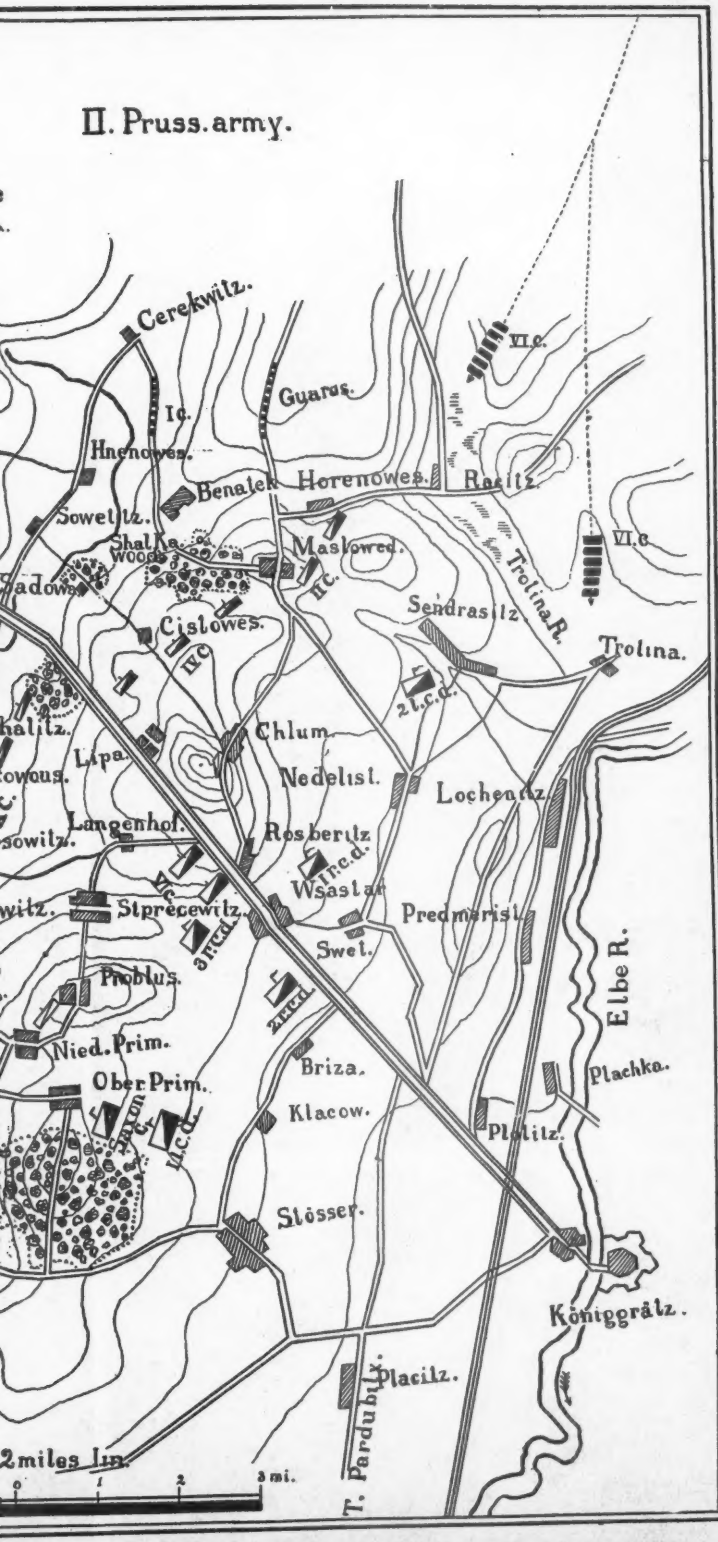
In the operations of small bodies of cavalry, it is only by perfect harmony with the infantry that it is possible to expect fortunate results from a cavalry attack against the enemy's infantry, cavalry, or artillery. As to the Austrian cavalry on the day of Königgrätz, its energy was shown only at the end of the battle when it saved its retreating army. One cannot but think that this energy might have been shown to better advantage if the control of all the cavalry had been placed in the hands of a single chief. The ground most favorable for cavalry operations was that to the north of Horenowes; and if the entire mass of the Austrian cavalry, at the reception of the news of the approach of the Second Prussian Army from the north, had moved to meet that army, there is great probability that the Prussians would have lost the battle.

If it is admitted that on account of the absence of means of observation upon the right flank the information of the approach of the Second Prussian Army was received very late, and that the Austrian cavalry had then no time to check the advance of the enemy at the right flank of the position, why could not the operations of the cavalry upon the left flank have been developed against the Army of the Elbe? General Baron EDELSHEIM, with the first light cavalry division, according to the account from Prussian sources, opposed great resistance to the attack of the Prussian right, but not once did he force the Prussians who had crossed the Bistritz at Néchanitz to fear for their rear. Orders from higher authority, however, greatly hindered and limited the operations of this General.

The Austrian cavalry made such energetic and timely resistance to the Prussian cavalry and infantry during the retreat of its army, that its operations at that time are worthy of imitation.

[*To be Continued.*]


Battle of Königrätz.
July 3d., 1866.
Pruss. troops
Austr. "
Cav. Duke Parma.
Milowitz.
I. Pruss. army
Res. corps.
Bristan.
Klenitz.
Stracow.
Dub.
Mzan.
Zawadilka.
Sucha.
Army of the Elbe.
Bistritz R.
Dohali
Mokowou
Tresowi
Popowitz
Alt. Nachanitz.
Lubna.
Saxon corps.
Nachewitz.
Scale 2mi


II. Pruss. army.
Cerekwitz.
Ic.
Guaras.
VI.c.
Hnenowes.
Benatek
Horenowes.
Rositz.
Sowetitz.
Shalka Wood
Maslowed.
IIc.
Trotina R.
VI.c
Sadowa
Cistowes.
IVc
Sendrasitz
Trotina.
2 l.c.d.
Chlum
Nedelist.
Lochenitz
Lipa.
Langenhof.
Rosberitz
Wsestar
Predmeristi
Sprecewitz.
3 r.c.d.
Swet.
Elbe R.
Problus.
Nied. Prim.
Ober Prim.
Briza.
Klacow.
Plachka.
Plotitz.
Stösser.
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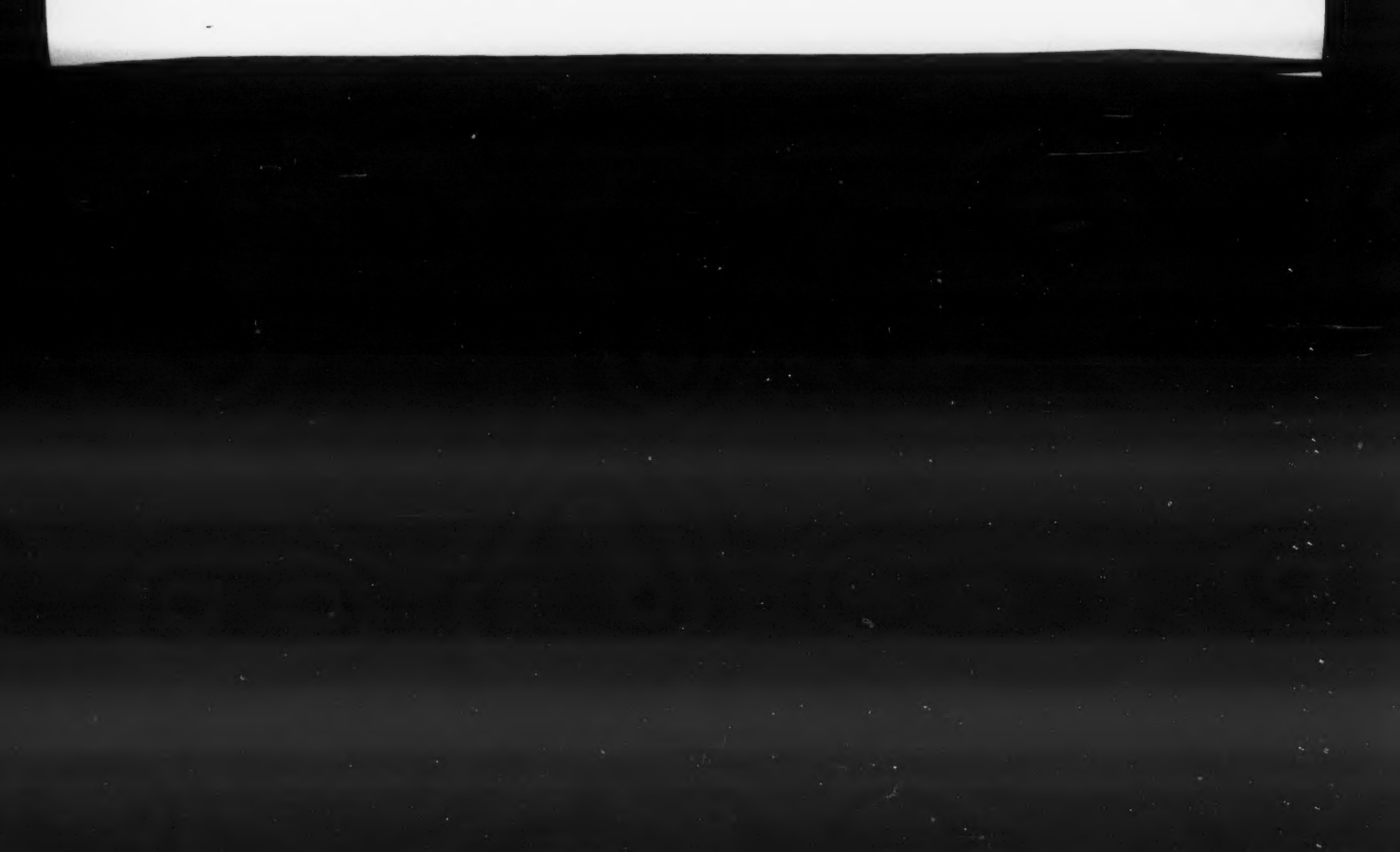

THE SABER.

By First Lieutenant E. P. ANDRUS, Fifth U. S. Cavalry.

WHEN fire-arms were first introduced into armies, it was predicted that the days for the use of cavalry upon the battle-field were ended; and, ever since that time, the question—"Will the saber in future be useless as a weapon?" has risen anew with each successive improvement in fire-arms or powder. And, each time, up to the present, it has been answered both affirmatively and negatively; affirmatively in theory on paper, negatively in practice on the battle-field. I have no doubt that the future answers, so far as the recent improvements are concerned, will, under competent leaders, be the same as in the past.

It is not the present intention to discuss the above question in all its bearings, but to present one side only—the negative, and to confine that to the action of cavalry against artillery and infantry.

Let us look back in history and see what has been accomplished with the saber when the charge has been well timed, well led, and pushed home. To Frederick the Great must be given the credit of first appreciating the true value of the *arme blanche*, and his great leaders—Seidlitz and Ziethen—showed what great results could be attained by its proper use.

In Carlyle's "Frederick the Great" we read that, at Hohenfreidberg, a single Prussian regiment of ten squadrons made a saber charge upon the Austrian infantry and totally routed it, with tremendous loss. Again, at Rossbach, Seidlitz, with seven squadrons, after defeating the Austrian cavalry, turned on their infantry and, by saber charges, changed simple defeat into utter ruin, and with but comparatively little loss to himself.

At Zorndorf, the Russian cavalry was inside the square formed by its infantry. Two divisions of Prussian infantry, separated from each other by some distance, advanced to the attack of the square.

The Russian cavalry leader, seeing this separation, threw his cavalry on the first division and drove it back in disorder.

At Torgau, FREDERICK's last great battle, the late afternoon found the combatants almost intermingled and success doubtful upon which standard to perch. The fighting had lasted since one o'clock and three desperate attacks made by FREDERICK had been repulsed. Just at dusk, ZIETHEN arrived upon the field with his cavalry. He carried the key to the Austrian position by a vigorous saber charge, and the victory rested with the Prussians.

Many other instances, illustrating the successful use of the saber against infantry, might be cited from these wars, but enough have been mentioned to show that it was so used in those days.

From NAPOLEON's wars we will select but one instance. At Marengo, when the retreating French were almost panic stricken from the pursuit by all arms of the Austrians, KELLERMAN, with only eight hundred sabers, fell suddenly upon the flank of the victorious infantry and utterly routed it. Austerlitz, Eckmuhl, Aspern, and many other of NAPOLEON's battles might be mentioned, but this one instance will suffice.

These were, it is true, the days of the smooth-bore muzzle-loader, but they were also the days of highly trained and most efficient infantry. FREDERICK THE GREAT taught his infantry to fire five volleys per minute. The caliber of the old prime locks then used was .69. I do not know the weight of the bullet, or rather ball used, but it must have been heavier than our present bullet; and the shock, upon being hit by one, was sufficient to drop a horse. Yet we read that the infantry of those days were repeatedly successfully charged with the saber, and broken with great loss, while the loss of the cavalry in many cases was but slight. The introduction of rifled fire-arms into the various armies caused a revival of the old theory regarding cavalry's uselessness upon the battle-field in the face of a new weapon; and its influence was so great that reductions were made in the cavalry branch of most European armies, Prussia being almost the only exception, and she increased the strength of both light and heavy cavalry.

Our own Civil War furnished the first extended test of this weapon. I will, however, mention but two battles of our war, where saber charges were successful against unbroken infantry armed with rifles.

The battle of the Opequon was fought and won on September 19, 1864. All day long the fight had raged and the Confederates

were finally driven to their last position in front of the village of Winchester. The long lines of opposing infantry were distant from each other not more than three hundred or four hundred yards, both taking and giving hard blows, with neither gaining any perceptible advantage.

On the left of the Confederate line was an open redoubt containing two guns which were seriously annoying the Union infantry. Its support consisted of McCausland's brigade of cavalry posted on its right, between it and the infantry. On the right of and very close to the Union infantry were Lowell's regular brigade and Custer's Michigan brigade of Merritt's cavalry division. Of the regular brigade there were present at this time one squadron of the First, two of the Second, and two of the Fifth U. S. Cavalry, numbering not to exceed three hundred sabers. This brigade was ordered to charge the battery; the distance, as stated, was not more than three or four hundred yards, the ground sloped gently upward toward the battery and its support, and was as open as a parade ground.

As soon as the brigade moved out to the charge, the battery and infantry opened fire upon them; but, regardless of this, they thundered down upon McCausland, swept him away, turned to their right, charged into the redoubt, took the guns and brought them back. As soon as the flank of the enemy's infantry became exposed, Custer charged it, supported by the regular brigade which re-formed in his rear as he charged, and rode it down for about three hundred yards, capturing many prisoners and forcing the Confederates to retreat up the valley.

The regular brigade was in column formation when ordered to charge, and deployed under fire of the battery and infantry.

Foreign military writers are now beginning to give the American cavalry credit for saber charges, and Lieutenant-Colonel Wilkinson Shaw, in his last edition, mentions this charge; but he quotes Colonel Fletcher, who gives seven thousand as the number of sabers engaged in it. The Colonel makes the mistake of including in this number all of Sheridan's cavalry, Averill and Wilson's divisions with Merritt's, whereas the records show the charge to have been made by only two brigades of Merritt's division; the two together not exceeding fifteen hundred sabers.

The other instance I desire to mention is the cavalry charge, or more properly the cavalry charges, at Cedar Creek near the close of the day's fighting. It was also against seasoned, unshaken and, more than that, victorious infantry.

It is well known that, on October 19, 1864, at Cedar Creek, the Union army was badly worsted up to about midday, at which time SHERIDAN arrived upon the field and re-formed his lines, placing MERRITT'S cavalry division on the left, and CUSTER'S on the right. About 4 o'clock in the afternoon, SHERIDAN ordered a general advance to the attack. The two cavalry divisions, saber in hand, charged the cavalry opposite, scattered them, drove both flanks in upon the center, which was then broken by a magnificent infantry charge; and the Confederate host was driven in utter rout from the field; so badly used up in fact, as never again to give serious trouble in the valley.

More saber charges would probably have been made had our army commanders better understood the use of cavalry on the battle-field. The "Rebellion Records" show a smaller percentage of losses in cavalry when employed mounted than when employed dismounted.

We now come to the days of the breech-loading rifle. The fear of this weapon seemed to be so great in 1866 that the Austrians were intimidated, and did not attempt much with their fine cavalry against Prussian infantry. Neither time nor use had made them familiar with the true battle efficiency of this weapon.

But Italian infantry, still armed with muzzle-loaders, inspired no such fear. At Custozza, a brigade of cavalry, numbering not to exceed two thousand, charged with the saber two divisions of Italian infantry, drawn up in two lines of battalion squares, covering each other's intervals. It broke several of the squares, carried confusion even to the rear of the Italian army, and then rode back again between the remaining squares, receiving their fire as it passed. In spite of its losses, it re-formed out of range and, from that point, watched this infantry, whom it held in place simply by its presence. I do not know what was the loss of the brigade during its double exposure to fire, but it evidently was not sufficient to "wipe it from the face of the earth," as had been so confidently predicted would be the result if cavalry should have the temerity to charge unbroken and unshaken infantry. On the contrary, it remained sufficiently intact to hold in check, and to cause a practical loss, so far as this battle was concerned, of twenty thousand men to the Italians.

In the Franco-Prussian War of 1870–71, we find a few instances, but not so many as we should, of the proper use of cavalry on the battle-field. Had our Civil War been studied before 1870, as closely as it has been since that date, both France and Germany would have derived much greater benefit from their cavalry than they did. The

next war in Europe will undoubtedly furnish many instances of cavalry being used in accordance with principles deduced from its use in the War of 1861–65. There can be no questioning of the fact that the cavalry of 1864–5, both Northern and Southern, has been unexcelled in its efficiency and leaders, by any cavalry that the world has ever seen, for there was nothing it would not undertake.

Probably the most famous cavalry charge during the Franco-Prussian War, was that of BREDOW's brigade at Vionville. It was looked upon as a sort of forlorn hope, for the system of umpiring at maneuvers had fostered the idea that it was certain death and destruction for cavalry to attack unbroken infantry armed with the breech-loader; but something had to be done to check the advance of the victorious French and thus gain time to bring up fresh German troops.

As the circumstances of this charge are so well known, we will not again recount them; but will merely ask attention to its results and to the fact that those best qualified to judge are practically unanimous in the opinion that this episode demonstrates that intact and victorious infantry, armed with breech-loaders, can at times be successfully charged with the saber even by frontal attack.

Prince HOHENLOHE-INGELFINGEN tells us that on that same day another charge of similar nature was made. After BREDOW's charge had been made the Tenth German Corps came up; one-half of the Nineteenth Division advanced towards Mars-la-Tour. Its attack fell directly upon the front of the Fourth French Corps; within a short time the brigade was forced to retire with heavy loss. Annihilation was threatened, when the First Dragoons of the Guard charged the pursuing French, brought them to a standstill, and rode them through, giving the German infantry time to rally. Again the cavalry lost heavily, half the regiment falling; but this loss was the salvation of a brigade, to say nothing of what might have occurred had not the French been checked.

The latest improvements in fire-arms and powders are in the direction of a rifled arm of small caliber and flat trajectory, carrying a bullet of about two hundred and thirty grains, and of a smokeless and noiseless powder giving an initial velocity of about two thousand feet. The result of the combination is an arm of great accuracy and penetrating power, flatness of trajectory (increasing the dangerous zones), and of practically no smoke and but little noise at the instant of discharge.

Of course, attendant upon these improvements, comes the old familiar statement; as in the past, experience alone can decide with what degree of truth.

It is true that the infantry weapon has improved, but the accuracy, range and rapidity of artillery fire has increased in even a greater ratio than has that of infantry fire; so that, in future, the effect of artillery fire upon distant masses of infantry will be greater than in the past.

The man behind the rifle has not kept pace in improvement, in courage, confidence and consequent steadiness, with his weapon; and the smokeless powder has opened to his vision that which the old black powder mercifully hid from his view—the destruction of life and limb. As there is necessarily a limit to every man's endurance, both physical and moral, so must there come a time during a battle, when the loss of life and the cries and groans of the wounded, united with his own bodily exertion and exposure, will unnerve the ordinary man and thus render him an easy prey to cavalry.

We have no reason to suppose that the cavalryman cannot be as well trained in the future as he ever was in the past; and, in the charge, he has his own impetuosity and that of his horse, the noise of the onward rush, the jangling of equipments, and that wild excitement that always accompanies a swift pace on horseback, to draw his mind from the dangers towards which he may be riding and the loss of comrades on either side of him; so that a well led charge is not apt to be more easily stopped now than formerly.

Breech-loaders have so placed infantry as to be always ready to fire; but on that account the supply of ammunition is more apt, than with old muzzle-loader, to run short. Again, the extended order of battle makes the line more susceptible of being thrown into confusion than formerly. When threatened with danger, men are naturally impelled to crowd together, and the more rapid the crowding the greater the confusion. When men stood so near each other as to almost feel each the other, they had more confidence and did not rush together, as will naturally take place now when threatened with sudden danger. Small bodies of cavalry can cause this sudden concentration, and then by rapidly withdrawing can give their own artillery and infantry a chance at these groups.

It is a question whether the advantage gained by rapidity of fire is not more than overcome by the decrease in the immediate effect of a hit by the smaller projectile. Experiments prove that it takes many hits by the small caliber projectile to disable an animal, while but one, or very few, of the old projectiles need hit to retire from

immediate use the individual struck. It is related that at Aldershot, where the new small-bore arm is used, a pig was struck seven times, receiving each hit with a dissatisfied grunt. The pig finally died, it is true, but not until its work, had it been a horse in a charge, would have been accomplished. The results of many carefully conducted experiments in musketry prove that the percentages of hits over unknown distances, generally accepted until very recently, are too great. In these experiments the men were perfectly cool and collected, firing at targets which were not firing back at them, and taking time to estimate the distances and adjust their sights. If, then, under these favorable circumstances, only small percentages could be obtained, what would be the results when the conditions were those of the battle-field?

The natural points for cavalry charges on infantry are the flanks, for they are its weakest points. There will be no battle-field so devoid of shelter or so level as to prevent bodies of cavalry, either small or large, from approaching under cover near to an enemy's flank and, once there, the opportunity for charging will present itself through some mishap to the enemy or chance of surprise; and the odds are greatly in favor of the success of the charge, if well timed, supported and pushed home.

While frontal charges on infantry cannot be advocated, as a rule, yet there are times when such charges will meet with success. They have succeeded in the past and, under favorable circumstances, should succeed again in the future. It is the business of the cavalry leader to watch for such chances and to take advantage of them quickly and decisively. The infantry, seemingly intact, may be so only in seeming. It may be of an inferior quality, or, through stress of battle, have become physically exhausted, or, through some tactical error, have become thrown into temporary confusion. Therefore, when circumstances seem to point to success, or when necessary to gain some tactical advantage, there should be no hesitation about making a frontal charge; only the effort can determine whether it will be crowned with success. In all cases, when a charge is to be made, ground scouts should be employed, in order to prevent a second Wœrth.

The Germans are acknowledged to be profound military students and to keep pace, in their investigations, with the various improvements in fire-arms and machines of war, particularly as to the effects such improvements may have upon future wars. Judging from their writings, they evidently believe that cavalry's future usefulness will equal that of its past.

Colonel v. LÖBER, of the General Staff, writes as follows: "Many writers have exaggerated the effect of the employment of small-bore rifles and smokeless powder upon the action of cavalry. All the experiences and improvements in fire-arms have done less harm to cavalry than the misapplication of its nature in training. A comparison of the Austrian, German and Russian cavalries points to the conclusion that all are unanimous regarding the point that cavalry attacks against unbroken infantry will still have good chances of success, if proper caution be displayed in making the attack."

Another one of their eminent writers says: "I have seen infantry which was quite played out. One squadron would then have been enough to have ridden down the remnants of an entire brigade; while a whole division could have practically decided the battle on that flank."

Still another distinguished officer is quoted as saying: "Personally, I have not seen many cavalry attacks; but those I have seen strengthen me in the belief that the action of cavalry on the battle-field can be crowned with success, if as the result of organization, training and good leaders, it feels that it can say: 'I will risk it. I can do it.'"

I will but briefly touch upon the action of cavalry against artillery on the battle-field. Many instances could be cited where batteries have been captured by saber charges, but I will simply quote from HAMLEY upon the subject, and cite one instance in support thereof. HAMLEY says:

"The practice of bringing great masses of artillery into position at an early stage of the attack must apparently cause large proportions of the line to be defended only, or chiefly, by artillery fire, during at least a portion of the action, because the guns will arrive before the main body of the infantry. The artillery of an army corps, if formed into one great battery, would occupy nearly a mile of front. There would be consequently a considerable part of this front inadequately, if not entirely, undefended by infantry fire, and in a great battle there would be many such spaces.

"On the opposite side the position, more deliberately occupied, would offer no such weak points, and if, as in many battle-fields, the ground between the hostile fronts be undulating without being intersected by farms, groves or hollow ways, there would seem to be no reason why masses of cavalry should not be assembled in anticipation, opposite the probable posts of the enemy's great batteries, and sufficiently near for a rapid attack upon them. Supposing the batteries directed on the opposing line, say fifteen hundred yards distant, the cavalry, already posted considerably in advance of their main line, might, in the heat and smoke and absorption of the en-

gagement, pass over the intervening space almost unperceived; in any case, to lay the guns accurately on the advancing horse at successive points of their final career would seem impossible; and even the time for many discharges would be wanting.

"Important opportunities then, which recent tactics will offer to cavalry, will be the attack upon masses of artillery. Especially will this be practicable when the corps artillery pushes into action on the flank of the advance guard pending the arrival of the main body, or when infantry are defeated and retiring covered by artillery fire."

The instance cited in support of this is quoted *verbatim* from HOZIER'S "Seven Week's War;" it occurred at the battle of Tobitschau in 1866.

"BREDOW (the same who afterward made the celebrated charge at Vionville), under cover of some undulating ground, formed his regiment in echelon of squadrons for the attack of the guns.

"The first squadron he kept toward his right to cover the flank of his attack from any Austrian cavalry which might lie in that direction. The second and fourth squadrons he directed full against the front of the battery, and supported the second with the third as a reserve. The squadrons moved forward in perfect lines, slowly and steadily at first, seeming to glide over the field, gradually increasing the pace, regardless of the tremendous fire directed upon them, which emptied some saddles. When within a few hundred yards of the battery, they broke into a steady gallop, which increased in rapidity with every stride that brought the horses nearer to the Austrian line.

"All the time of their advance the gunners poured round after round into them, striving with desperate energy to sweep them away before they could gain the mouths of the cannon. Rapid flashes of flame breaking from the mouths of the guns accompanied the discharge of the shells, which were blurted forth with a nervous haste through the thick clouds of smoke that hung heavily before the muzzles. The flank squadrons, bending a little away from their comrades, made for either end of the line, in expectation of finding there some supporting cavalry. The two center ones went straight as an arrow against the guns themselves, and hurled themselves through the intervals between them upon the gunners. Then the firing ceased in a moment, and the smoke began to drift slowly away; but all noise was not hushed; shrieks from men cut down by the broad blades of the cuirassiers; cries for quarter; the rapid tramp of snorting and excited horses; the rattle of steel; shouts, cheers, and imprecations from the excited combatants, rose up to Heaven in a wild medley.

* * * * * * * *

"Eighteen guns, seven wagons, one hundred and sixty-eight horses, with one hundred and seventy prisoners, fell into the hands of the Prussian force—a noble prize to be won by a single regiment. It lost but twelve men and eight horses."

We have thus shown that the saber in spite of the improvements in fire-arms in the past, has held its own, and we believe the same will be true in the future. The question, however, is not so much one of a particular weapon, as whether the mounted action of cavalry will obtain on the battle-fields of the future as it has upon those of the past. Germany, by increasing her cavalry force, has for herself most emphatically answered it in the affirmative. How will this country answer it?

CONVERSATIONS ON CAVALRY; BY PRINCE KRAFT ZU HOHENLOHE-INGELFINGEN.

TRANSLATED FROM THE GERMAN.
BY FIRST LIEUTENANT CARL REICHMANN, NINTH INFANTRY.

THIRD CONVERSATION, (DECEMBER 6, 1885). — OF THE TRAINING OF THE OLDER SOLDIERS IN THE TIME OF FREDERICK THE GREAT.

H. In order not to prolong indefinitely my questions about the training of the cavalryman of the past century, I have brought with me those of the writings of General VON DER MARWITZ, which contain so many details of the service in those days.

S. I am perfectly willing to accept as a basis the service, as it was when that General entered it , *i. e.*, in the last decade of the eighteenth century; I must repeat, however, that even then the cavalry was no longer in the zenith of its efficiency. The cavalry of FREDERICK THE GREAT reached its greatest perfection at the time of the beginning of the Seven Years' War, and again about ten years after the Peace of Hubertsburg.

H. It is natural that the efficiency of cavalry should suffer, used up as it was by seven years of war. In 1763 there were probably left but few well trained privates of 1756, and probably no horses at all which, in 1756, had been well broken; it is also probable that a systematic and thorough training of men and horses was impracticable during the seven years, in which no part of Prussia remained untouched by the war. But why should the efficiency of cavalry have decreased after 1774, since the Great King was still living?

S. It is a constantly recurring fact that, as time passes, the rust of peace attacks armies, unless it is kept off by men whose first consideration is the requirements of war and who, holding the latter in fresh remembrance, take care that the rust be removed. SEIDLITZ was dead; ZIETHEN was very old; the King could not supervise everything in person, and probably had no longer the strength to do so.

Briefly, from all we read and know of the time from 1774 to 1786, it appears that our cavalry, in all its regiments, was no longer what it used to be.

H. All old people in all walks of life, say: "When I was young it was different." As Colonel of Hussars in the campaigns against France from 1792 to 1795, BLUCHER accomplished remarkable successes.

S. Yes, BLUCHER did; and many an individual regimental commander did also. But of the use of masses of cavalry the history of the campaigns on the Rhine says nothing. One would think that in these campaigns the first levies of the French Republic, without proper organization and discipline, should have been swept off the field like chaff before the wind, by the use, in masses, of FREDERICK'S cavalry.

H. To return to MARWITZ; in his narrative of the time when he became a lieutenant, he says that he was constantly on his legs from 3:30 A. M. to 7 P. M., of which time he spent at least six hours on horseback, for the Estandarten Junkers (ensigns) were required to ride two horses, one in each squad. Hence there was riding by squad.

S. But he was still a recruit. The first instruction in riding had probably to be given by squads.

H. He joined for duty (January, 1790) shortly before the drill season, beginning in March. Then (on the same page) he writes: "Duty was light except during drill time. For there was daily but one small squad that rode or drilled dismounted. The Junker, while such, belonged to that squad for good."

S. There we already have a considerable difference between the service in MARWITZ'S time and in that of the Great King. During that last decade there was but one small squad that daily rode or drilled dismounted; thus this small squad did not even ride every day. But FREDERICK II. stated, as I have already mentioned, that the day was lost on which the rider did not exercise his horse; and he had them exercised even on Sundays. Furthermore, it does not follow at all that the squad in question rode in the school of the squad in the riding square or hall. If you look you will find that in the appendix to his essay on the decline of the Prussian cavalry, MARWITZ only speaks of the drill of the squadron and of individual riding. He even complains that, for three weeks in the fall, there were but forty men per company present for drill and that there was no individual riding at all.

H. Let us stop at this appendix to MARWITZ'S essay. According

to this there were one-half of the sixty-six gens d'armes of the company, *i. e.*, thirty-three on furlough. These furloughed men were called in from March 16th to May 23d, and were given individual riding for three weeks; after that there was company drill daily for three weeks; and, after the special review, only a sufficient number of the furloughed men were retained with the company to enable it to turn out with forty-eight gens d'armes. In the fall there was drill for three weeks with forty men, eight or ten furloughed men being called in. Thus he calculates that every furloughed man mounted his horse only twenty-seven times, the few who were detained in the service until the great review thirty-six times, and those again called in in the fall, forty-five times altogether. That, then, was all the cavalry work done by one-half of the men of this much renowned cavalry, which we are to take for our model! I think that one of our four year volunteers, who, during his last two years of service, mounts his horse five times per week, *i. e.*, 500 times in two years, can gain as much skill in riding as an old soldier of thirteen years' service of those days, who, after his first two recruit years, mounted his horse but forty-five times per year at the highest.

S. No exception can be taken to this calculation. I can only repeat that this was not the time when our cavalry had reached the climax of perfection. The system of furloughed men was the outcome of constantly increasing retrenchment and economy, beginning a long time after the three Silesian wars; and it became more and more extended because it was of pecuniary benefit to the chiefs who, under the law, were allowed to pocket the pay of the furloughed men. This system of furloughed men became gradually extended and, toward the end of the eighteenth century, it reached such dimensions as to greatly impair the efficiency of the cavalry, and the infantry too, as you read in HÖPFNER's "History of the War of 1806."

H. Do you think there were no furloughed men in SEIDLITZ's time?

S. There were some; but they were kept in practice and under control, as VARNHAGEN V. ENSE tells us.

H. The money for the furloughed men's pay went into the pockets of the captains?

S. In order to reimburse them for many expenses which were required of them, and of which we now have no idea; for up to the beginning of this century it was customary for the officers to be daily guests at their captain's tables.

H. Then there was also the system of "Freiwæchter," of which

MARWITZ complains. The law provided ten of them per company. They took part mounted only when the whole regiment turned out.

S. This system must also have impaired the efficiency of the cavalry, for MARWITZ says that they were poorer riders than the furloughed men, which does not surprise me.

H. Lastly, MARWITZ calculates that, of the remaining twenty-three men, the recruits for two years, *i. e.*, sixteen men, are to be deducted, leaving seven men with whom there was a possibility of their being good riders at the end of their terms of service.

S. Here I must check up MARWITZ's calculation. He figured seventy-five horses and sixty-six gens d'armes per company. For whom were the remaining nine horses?

H. For the first sergeant and non-commissioned officers, of course.

S. There we have nine more excellent riders. I will subtract one more from the above mentioned seven men, assuming that a man in his fourth year of service, even when riding daily, was not counted among the good riders. But the other six gens d'armes must have had much practice in riding. They were soldiers by trade, remained in the service until invalided, and assuming for the eight recruits to the sixty-six men an average term of service of sixteen years (counting in former losses); then, of the seven gens d'armes remaining constantly in the service, one must have been in the sixteenth, fourteenth, twelfth, tenth, eighth, sixth and fourth year of service each. The six oldest ones must have been good riders, for the poor riders were probably gotten rid of as "Freiwächter" or furloughed men. We may therefore say that at the end of the past century there were still probably fifteen good riders (exclusive of officers) in the troop, or thirty in the squadron.

H. But that is not of decisive importance.

S. It is; for you must consider that these fifteen or thirty riders respectively, who were then called good riders, were much farther advanced in the art of riding than the best riders we now have among the non-commissioned officers and privates of a squadron. Thus the squadron had thirty men who were excellent riders, and could be entrusted with the breaking of remounts. The steadiest, lightest and most intelligent ones could be selected for the youngest remounts, and there still remained enough picked riders to ride the older remounts, rebreak spoiled horses and break some horses to school riding.

H. Did that make better campaign riders of the great mass of horsemen?

S. Certainly; for the recruit mounted a horse better and more correctly broken to campaign riding than is often the case now. He thus received from the beginning a proper touch on horseback; he acquired a correct seat on a horse of correct paces. If a recruit receives his first instruction on a mistrained horse, the bad habits of the latter give him a faulty seat and hand, which are incorrigible and in consequence of which, when he is entrusted with breaking horses, he teaches them bad habits unconsciously and involuntarily. But when the recruit receives his riding lessons on a correctly going campaign horse, he will learn more riding in the first two years than another in four years who learns riding on a horse of faulty paces. But the principal point is, he will never spoil a horse; because he has, from the outset, that feeling one ought to have on a good horse.

H. This is obvious, for it is an old, well known cavalry rule that the recruit horse breaks the recruit just as much as the remount rider breaks the remount.

S. Now just think what a help it would be for a squadron to have thirty such fine riders.

H. You mean to say that the squadron does not now possess thirty good riders?

S. It may possess thirty or more riders, which now may be called good riders, but none of whom would then have been counted among those seven mentioned by MARWITZ. If, in addition, we consider that in the best times of cavalry, in 1756 and 1774, there were neither "Freiwæchter" nor furloughed men in such numbers, you must concede that a squadron possessed not thirty, but perhaps one hundred, well trained riders, of whom one-half, having special aptitude, might be called excellent riders.

H. When I consider this and assume that in the time of the Great King there were perhaps still fewer recruits, because the men remained in the service longer than in MARWITZ's time, then it follows of course that the squadron, leaving out sixteen remounts and perhaps two recruits, was always completely trained, winter and summer, and ready for the field at any time. But now the question comes: "What did the finished part of the squadron do throughout the year?" for the troops must have had an awfully dull time, when nothing was left to be done in the way of training.

S. SEIDLITZ never allowed time to hang heavily on the hands of his cavalry. A squadron, of say 100 horses, with its training complete, had plenty of exercises to practice the whole year round. Let us suppose there was a drill season of two months in the spring, and a practice season of two months in the summer and fall for drill

of larger bodies and maneuvers; there remained eight months which, in your opinion, were not utilized. But those eight months could be used to good purpose to practice things for which we have no time now, but which must be practiced thoroughly if cavalry is to serve its purpose fully.

H. What are those things?

S. Individual instruction, use of arms, marches before the enemy, riding under difficulties (obstacles, heavy ground, ice), rallying, passage of defiles and deployment upon emerging from the defiles, passage of fords, swimming. During all these exercises, that part of the troop not belonging to the remounts or recruits, drilled at least once a week in the school of the squadron in order to remain in a constant state of efficiency.

H. You have already informed me fully of the value placed upon individual riding by FREDERICK THE GREAT; but, as to the use of arms, I am inclined to believe that it was not in a higher state of perfection in those days than now.

S. Do you think there are now many regiments that possess sufficient proficiency in the use of the saber and lance?

H. I have observed but few regiments in detail; of the two regiments belonging to the division under my command, the one was as proficient in the use of the saber and the other in that of the lance, as could be expected.

S. Correct! as proficient as could be expected—considering how little time is devoted to it now. And, besides, these two regiments are perhaps shining exceptions. In many of the other regiments there are few of the older soldiers able to make a vigorous cut from the horse while in motion, or to touch with the lance a certain point. Under SEIDLITZ this was not sufficient; there the individual combat of man against man, of cavalryman against infantryman armed with the bayonet was practiced assiduously, and all the older soldiers possessed great skill in it.

H. Instead of this, much time is now devoted to instruction in the use of fire-arms; how well do our hussars now shoot with the carbine, while formerly there was a saying: "Whoever is hit by a cavalryman's pistol must believe in predestination."

S. This saying originated in the Wars of Liberation and those subsequent to them. SEIDLITZ laid great stress upon skill in pistol-firing, and had his men fire at the target from a gallop, and "even load at full speed and fire with deliberate aim" (VARNHAGEN VON ENSE). You may imagine how much time was required before the men acquired anything like proficiency.

H. The effect of cavalry fire is much more intense now than 100 years ago, because of the improvement in fire-arms. But leaving out the quality of fire-arms, the men were better shots then in comparison; they practiced more, especially the firing from horseback. But you were speaking of warlike marches. I should think they are sufficiently practiced during drill and maneuvers.

S. Not at all; for when the troops turn out for drill and maneuvers, they cannot make their marches as long as is desirable, because they must save their strength for drill and maneuver. In your letters on cavalry, you have pointed out yourself how important it is for a cavalry division to be able to make forced marches of fifty kilometers per day. You have pointed out that it requires practice to observe all those details which tend to save the strength of man and horse, when such great demands are made on them. Do you believe that, with six such forced marches of a whole division as proposed by you, you would accomplish anything but the ruin of a large number of horses, unless each squadron had had practice in making such long marches and sparing the horses as much as possible at the same time?

H. You are right there.

S. But the trooper must also learn how to march in different seasons of the year. With snow and ice on the ground, other things have to be observed than at the time of the fall maneuvers; and all this requires practice and experience, it cannot be learned from books, or looked up in a compendium at the moment of action.

H. Referring to what you further said of riding on difficult ground and rallying, I think we have plenty of time to practice it during drill.

S. Not at all; it must not be omitted during drill whenever there is an opportunity. But riding over all and any kind of ground should be practiced more than is possible under our present conditions of service. In those seasons of the year when we can march over the fields without doing damage, all riders are now confined to the ring. Under SEIDLITZ, they were dashing over snow covered fields; there the rider convinced himself of the possibility of passing over any kind of ground; there the horse learned how to act, if only the rider did not fret it with the rein, and kept a steady and firm seat. All ground of such character throws troops into disorder; but when each individual rider has learned to get over such ground the troop can learn how to rally quickly from the apparent disorder and be ready for a closed charge.

H. Did not many horses hurt themselves and become ruined

during these numerous exercises under SEIDLITZ on any kind of ground?

S. Much fewer than are now ruined by the awkwardness of horse and rider, when the troop for once gets into that kind of ground, unless previously taught how to act there, learning the easy things first. I remind you of what you told me yourself of the paper chases of infantry officers.

H. You mentioned the passage of defiles and the deployment upon debouching from the same. That, it seems, is merely a matter of drill. When the squadron has learned how to form front into line from column of threes, it knows how to deploy from a defile.

S. There, like many others, you are in error. From column of twos or threes the troop can only begin to form front into line in the manner prescribed in the drill regulations, when the rear of the column has left the defile and has room to march to the right or left oblique without disorder. But the troop must be able to begin the deployment from the defile as soon as the head of the column emerges from the same. If this is practiced on various and uneven ground, the troop can be formed for the charge quicker by the depth of the whole column. Such deployments from defiles are closely connected with quick rallying after passing over difficult ground, which loosens the order. For a mass of cavalry, formed in several lines and advancing on a broad front, meets with various ground. Here a squadron has to break into column to pass a bridge over an impassable ditch; there another has to give up the close formation on account of marshy ground or other difficult terrain, or it must pass in seeming disorder through wooded or bushy country; another comes upon a village and has to use the village street. Immediately beyond is the enemy; if the mass knows how to rally quickly, or to form line rapidly from the defile, it will be ready to charge without loss of time. If any time is required, however, the enemy has the advantage, awaiting as he does the cavalry just beyond the difficult ground. At the Striegauer Wasser, the Austro-Saxon cavalry stood ready at charging distance waiting for the Prussian cavalry, and thought it utterly impossible that the latter should be able to make a close charge immediately after passing that ground. But the Prussian cavalry had been practiced in such work; it quickly assumed a closed formation, surprised and defeated the enemy.

H. The first extra number of the *Militaer-Wochenblatt* of this year (1885), contains a similar incident from the battle of Chotusitz. The difficult terrain consists of several ditches with marshy and overgrown banks (loosening of the closed order), on the right flank

a creek with few passages (breaking into column and forming line), and on the left is the marshy Doubrawa. "The first line succeeds in passing the difficult ground, rallies quickly, breaks through both lines of the opposing Austrian cavalry, charges their reserves, throws the 3000 Croats and two infantry regiments of the second line into disorder."

S. But the second line?

H. The second line did not succeed in passing the same terrain; it had to pass through the village of Chotusitz and was met beyond by cuirassiers and hussars. It spite of its bravery the second line was defeated, "because the remaining seven squadrons had not been able to follow."

S. It would seem that this second line was not as well practiced in passing difficult ground and forming line after passing a defile as the regiments composing the first line.

H. That is possible, unless the soft ground was so much dug up by the first line that the second line stuck fast in it. Such things happen. The King, in a letter to Prince DESSAU, writes: "The action of part of our cavalry was very brave and heroic." He does not seem, however, to have been entirely satisfied with the "quick sounding of the assembly" and the "quick rallying." At least, he issued the regulations for the cavalry and the dragoons a month later while in camp at Kuttenberg; and he had a squadron of the regiment "gens d'armes" turn out repeatedly in the same camp and commanded it in person, to show "how squadrons were to drill in changes of direction at a gallop, how to disperse, and how to rally quickly upon the trumpet signal. All generals, field officers and squadron commanders were required to be present at these exercises."

S. The King reaped the fruits of these exercises three years later at Hohenfriedberg. To be able to do this, however, requires that all the men be practiced in it frequently. It also follows from the result of these regulations, which bore such fruit within three years, that it does not require a term of service of ten or twenty years to teach the men so long as they are practiced constantly and industriously. SEIDLITZ's movements at Rossbach and Zorndorf would also have been impossible if the cavalry had been thrown into disorder by every obstacle of the terrain.

H. There were fewer obstacles then than there are now. The increased cultivation of the ground has changed many a wide plain into cut-up ground.

S. That is one of the favorite sayings of modern times, by which, on the one hand, it is attempted to show that less or no cav-

alry at all is needed now; and which, on the other hand, is used as an excuse when the cavalry is no longer as efficient as it was 100 years ago. I admit that increased cultivation has rendered much of the terrain more difficult; but that should only be one more reason why the passage of such ground should be practiced. Nor were there entirely smooth plains 140 years ago everywhere that cavalry had to charge.

H. Under the orders of the Great King, cavalry had invariably to send forward some scouts, even officers, to examine and report upon the ground in front as to its practicability.

S. In general, yes; in special, it was frequently impossible. If you follow the routes taken by SEIDLITZ at Rossbach and Zorndorf, when and where he came into line and charged, you will agree with me that he could not have waited for reports to come in of every ditch, etc.; in that case he would surely have been too late. On the other hand, if he had not been sure that his cavalry could preserve or at least quickly regain the close formation and readiness to charge, in spite of all difficulties unexpectedly presented by the ground, he would not have ventured such movements with such large bodies, because he would have considered them foolhardy.

H. Was he not foolhardy and very lucky?

S. Not at all. He knew very well what he could risk, and when and where. He refused to obey the King's order at Zorndorf, when the latter ordered the charge too soon; and answered, when threatened with beheading, that "after the battle his head would be at the King's disposal, but that while the battle lasted he meant to use it himself in the King's interest."

H. Lastly, you mentioned the passage of fords as a special practice. I do not see why this should require special practice. A ford is a place in the river where the water is so shallow that it can be crossed by wagons or horses without swimming. There is no special art about it that has to be practiced. The only difficulty which might present itself would be a dislike to enter the water on the part of the horses; but there are many horses which like to go into the water, and do so fearlessly. Put them at the head to lead, and the others will follow, like one sheep another.

S. That is a wrong opinion, shared by the cavalry to a great extent. When the water is only a few inches deep and not rapid, it can be done that way, but then the ford is not worth mentioning. It is different when the water is so deep that it reaches to the horse's belly or higher, and when the river has some current. If a large body of cavalry rides through it in the dense marching column, it

forms a kind of dam from one bank to the other, above which the water will be checked, while below it flows off and its depth decreases. This causes a constantly increasing pressure of water, which pushes the horses down stream. Now, if every rider follows the man in front of him, this drifting down stream increases constantly; for if the first file drifts down one foot, the second file drifts two feet; the twentieth, twenty feet. The column soon forms a line concave toward the current, the water being checked most where the current is swiftest. Finally the pressure of water becomes so great that the horses are no longer able to resist it, and the higher the water rises the more it lifts the horses, so that their weight is insufficient to insure a good foothold. The column is suddenly torn asunder by the force of the water; the horses in the middle of the current are carried down stream, where the river is not fordable, and are in danger of being helplessly drowned.

H. Then the men must so ride through the ford that the road they follow in the water forms an arc convex to the direction of the current?

S. That is easier said than done; for, in the first place, it is a question whether the line followed by the ford and its width admit of making such a convex arc; and, in the second place, when the men cover in file, the current will soon make a straight line of the convex arc in the manner just indicated, and finally a concave arc, if the body of troops is large (division) and the crossing takes much time. It is necessary that this body of cavalry ride through the ford by platoons, leaving distances between the platoons to allow the water to flow off that it may not be checked. Each platoon should also have a guide knowing the ford. This can be accomplished if the leader of each platoon observes the direction in which the head of the platoon in front of him is led, that he may take the same direction and follow the rear of the column. But then, and especially if the current is strong, it becomes necessary that the platoon ride through the ford, not in the prescribed marching order, but in the "pulk,"* each horse's head being held above the rump of the next horse up stream. All the horses must also be held with their heads somewhat obliquely to the current, like the bow of a ferry boat. But it is absolutely necessary that no horse or rider be afraid of the water. They must be familiar with it, in order not to make fatal mistakes from fear of the water or from thoughtlessness. A horse unfamiliar with the water seeks with its front feet for some object on which to gain a foothold. Thus it happens that it tries to

*A Cossack formation.

place its front feet on the croup of the horse in front, pulling it down and making mischief. It is also to be observed, that every man riding for the first time through water, is inclined to look down into the water. Where there are eddies or whirlpools, it causes a turning sensation and consequent faulty guidance of the horse. The riders must practice looking steadily at the point on the farther bank, which they mean to reach. The rider must incline his body against the stream, so that if he becomes separated from his horse, he may get into the water above the horse, as otherwise he would be in danger. It is also very necessary that the rider preserve the regulation seat and thus give the horse the accustomed hold. He who is afraid of wet feet and pulls up his legs, loses all control over his horse at the moment of danger.

H. I see; the troops must previously be well and thoroughly instructed.

S. Instruction alone accomplishes nothing. Practice alone gives safety. Instruction must precede practice, which must progress from the easier to the more difficult. The horses must go into water willingly and confidently. This is necessary, in order that a ford may not prove an insurmountable obstacle to an individual patrol. To cross the ford with a large body however, it is necessary that all horses know how to swim under the rider, and that the riders have learned to act so that, when the depth of the water increases and the horses have to swim at the deepest places, they may not lose their heads.

H. Did the cavalry of SEIDLITZ practice fording frequently?

S. In his "Life of Seidlitz," VARNHAGEN VON ENSE tells us how fording was made the subject of frequent and special practice. They even drilled in the river Ohle, *i. e.*, forming line and breaking into column of threes. I believe, however, that the more frequent practice of fording was also due to the then circumstances. For in those days there were many more fords than now, when the communications are in so much better condition and bridges have been built everywhere. Fords were then crossed every day. The cavalry of those days could also swim, hence it must have had practice. The history of the Seven Year's War furnishes many examples of large bodies of cavalry crossing rivers by swimming.

H. I shall have to ask you many more questions about swimming, when we come to the training of the horse. For the present, I beg to state that I am not much impressed with the details of the service in the last century so far as the part taken by cavalry officers in

time of peace is concerned. I can only speak of what MARWITZ says. We have already mentioned how rarely the older soldiers mounted their horses. The recruits rode every day. But how many were there of them? Twelve per squadron, or sixteen at the highest. It is certain that an officer was not always present. What did the officers do in those days?

S. There is no question that cavalry officers of the last century had nothing whatever to do with the interior service. That was a matter between the captain, the first sergeant and the non-commissioned officers. The hard work of the lieutenant of the present cavalry, who in time of peace is busy from morning till night, was unknown then. In time of peace the officer was much more occupied with formalities and pleasure than now. Nor were his services necessary, for there were few recruits, many good riders and experienced non-commissioned officers. The officer's activity was limited to formalities, squadron drill mounted and dismounted, breaking his own horses, and bodily exercise. This was practicable in view of the long term of service and the uninterrupted state of complete training of the troops, which on this account reached such a high state of efficiency.

H. At a distance everything looks much rosier; and what is separated from us by centuries appears to us more perfect than the present, because we do not see its weak points nor get a close view of its worst features. Did you read what MARWITZ adds to the appendix of his essay on the decline of the Prussian cavalry?

S. You mean the amusing story told by v. AHLIMB of FREDERICK THE GREAT's criticism of the "Yellows," the cuirassier regiment "Prince of Prussia"? Certainly. What do you infer from it?

H. That they also cooked with water in those days, and that the cavalry was not so perfect on all points, as FREDERICK'S cavalry appears to us now in the light of glory shed over it by history.

S. But how harshly the King criticizes a poorly trained regiment! "Slovenly, no accuracy, no order. The scoundrels sit their horses like tailors. You will have to do with me." Thus the King speaks to officers! He speaks to them of "lazy bones," "shame," "being cashiered," and says: "I shall have my thumb on you; these things must change or the devil will take you." It also appears from his speech, that the pay of the furloughed men went into the captain's pocket, which fact we mentioned above, for the King says: "The captains only think of making money," and then describes in detail how all the men are furloughed. Do you believe

that the King would have criticized the regiment so harshly, unless other regiments had come up to his requirements? It also appears from the same speech how much he demanded from his cavalry officers. "Your service is such," he says, "that I must demand more of a lieutenant of cavalry than from a major of infantry." Nothing shows better than this severe lecture what a high standard the whole of the King's cavalry must have reached.

H. The horses, too, and their training?

S. Of that, another time.

THE "TROT" AS A CAVALRY GAIT.

By Captain S. L. WOODWARD, Tenth Cavalry.

THE trot is prescribed in the last drill regulations as an habitual gait, and virtually as *the* habitual gait; and it is now used to the almost entire exclusion of every other. We trot from the stables to the drill ground, and trot through the drill.

Comparatively few horses are natural trotters, and fewer are easy trotters under the saddle. Often a colt in the pasture will be seen to strike a trot and keep it for a few moments and it would be declared by its owner, or other enthusiast, to be a "natural trotter"; but almost invariably it will kick up its heels and go off in its natural gait—a gallop. Perhaps in the fine breeding of trotting horses, there may be colts bred as natural trotters; but they are raised for driving purposes, and nobody ever thought of training a horse to make great time as a trotter under the saddle. All fast riding horses are runners; and the run is a kind of gallop. However, this paper is not intended to be a dissertation on "thoroughbred horses."

It has always been conceded that the most valuable gait for a saddle horse, for comfortable riding and for long and hard marching, is a walk. It is also a well known fact that a horse which trots naturally, or has been trained from infancy to trot, is rarely, if ever, a good walker. The present scheme seems to be to teach every horse to trot; and as this is the "habitual gait" prescribed, either the rider is at fault or the horse must be condemned as unfit for cavalry service. When a horse is trained to habitually trot, his walk and gallop are very much impaired. No one with a fine carriage roadster will permit him to be used under the saddle; and no one with a fine saddle horse will permit him to be put in harness. I am aware that good horses are often used both ways, and are intelligent enough to adapt themselves to the altered circumstances. It does not change the

rule that a fine harness horse is only a trotter, and a fine saddle horse a walker or galloper. Imagine taking a fine trotting horse out of harness, equipping him with a saddle, curb bridle, and 150 or 200 pounds of "avoirdupois," and putting him at hurdles and ditches. Nobody ever saw an Indian or frontiersman ride at a trot, and they are the model riders of this country.

The United States never saw, and in our time will not see, more efficient cavalry than that which was in service during the last two years of the late Rebellion. I was identified, from February 1, 1862, to September 19, 1865, with that portion of it which served in the States bordering on the Mississippi River and its tributaries, and I speak more particularly of that portion. It was my good fortune during the period I have named, to act as a staff officer of cavalry for commands ranging in strength from a brigade of 1700, to a corps of 32,000. The men composing these commands were generally from the Western States, and raised, virtually, on horseback. The horses, like the men, were trained for the saddle. The "trot" as a gait cut no figure; it was seldom that a trotting horse was seen, until late in the war, when two or three regiments came from the East, composed generally of very amateur horsemen, and commanded to a large extent by imported officers; these attempted to make their regiments trot. I shall never cease to be amused at the reply of one of these troopers to his colonel, who ordered him in language more forcible than elegant to "trot"; he said: "My God, Colonel, I cannot trot; my horse is a pacer." These regiments presented a novel appearance to the natural-born horsemen from the Western and Southern States, and they were by these derisively called "saddle spankers." I felt thankful that I was not considered a "saddle spanker"; but alas! we have all come to it now.

The trot is an unnatural gait for most horses, especially under the saddle with from 150 to 250 pounds on his back. It destroys his efficiency for walking or cantering, and the motion, a pounding one, is hard alike on men and horses. A canter, or lope as it is called in the West and South, is more natural, horses are more easily trained in it, it is more exhilarating and less fatiguing to the rider, and simply requires a little acceleration to make it a "gallop" or "charge."

In this connection I desire to say that more attention should be paid to the walk; however, I do not wish to be understood as advocating drilling at a walk. I believe that maneuvers on drill should be at rapid gaits, the canter or gallop. But for marches and campaigns the walk is the only gait, if the commanding officer expects to "get

there" in good shape. I am aware that it has been advanced by some officers that cavalry on a march should alternately walk, trot and gallop; I believe if the campaign were an extended one, remounts would have to be close on our heels or we would walk and lead our horses, or leave the animals and abandon the equipments. In 1863 a command to which I belonged marched 800 miles in sixteen days, and the command proper never moved out of a walk except on one occasion, when it went at a lope to the relief of a battalion which had preceded the main body by several hours, and was suspected to be in trouble. Of course detachments made rapid dashes into towns and in pursuit of a visible enemy, but never at a trot.

There are not, in the troop which I command, a dozen horses which would be considered easy trotting horses by any officer in this post. Officers, if they have to ride at a trot, will select their mounts with that view; the soldiers ride what is assigned to them. I believe cerebral disease has been caused by men being compelled to ride hard trotting horses. This idea has not only arisen in my own mind, but has been advanced by others. It is not original with me.

I believe that carefully trained horses can be brought to walk four and one-half miles per hour. I am aware that four miles is the normal gait; but I have owned several which made five miles on a measured road, about feeding time, when their noses were pointed toward the stable. The canter covers about six miles per hour; a slow trot is supposed to be about that, but I have been compelled to ride at a trot in a column, where the gait was not more than five miles per hour. It was pronounced so by others who were participants and onlookers. A well trained walking horse could have done nearly as well with more ease to himself and the rider. For the gratification of the populace who are spectators on parades, etc., I believe that the canter or gallop would be more satisfactory than the trot.

An officer who marches his command ten miles at a trot and goes immediately into action, will be half whipped when he gets there. I consider it as bad as marching infantry five miles at double time and going into action. The worst whipped command I ever saw had been served that way by an inconsiderate and inefficient commander. Much of the drill might be by marching the troops eight or ten miles at a time over the ordinary roads, the slow-walking horses being coupled with the faster ones. Many of the former could thus soon be trained to be good walkers, and the men would acquire a graceful, easy seat, which they cannot by eternally pounding around at a trot on the drill ground.

These are simply a crude compilation of ideas on the subject which have forced themselves upon me since I came to this Post, where the "trot" is the prevailing gait. I have been guided by my experiences of nearly thirty years' service in the cavalry, and while I am open to conviction and in favor of progress, I would prefer to put myself on record as of the opinion that a trotting horse, as such, is not an efficient cavalry horse.

DISCUSSION.

Captain S. M. SWIGERT, Second Cavalry.

I do not agree with the essay just read, for I think the trot is preëminently the cavalry gait when properly used, but like everything else it can be abused, and horses are broken down by it as well as any other gait. The trot is one of the natural gaits of a horse, yet, for a proper use of it, cavalry horses should be carefully trained to it, as uniformity and steadiness of motion is what is most required.

Some fast time has been made by trotters under the saddle: Great Eastern, one mile, 2:15¾; Tacony, two miles, 5:02; Dutchman, three miles, 7:32½; Dutchman, four miles, 10:51; Whalebone, six miles, 18:52; Steel Grey, ten miles, 27:56½; Chancellor, thirty-two miles, 1 hour 58 min.; Rattler, thirty-four miles, (154 lbs.,) 2 hours 18:56; Black Jake, fifty miles, (175 lbs.,) 3 hours 57 min.; Halliday, one hundred and ten miles, (196 lbs.,) in less than eighteen hours.

For the last three years I have used the trot with my troop almost constantly, and I think both men and horses are better for it; have not had one sore back; the speed at all gaits is much more uniform. The trot should only be used upon suitable roads and under proper conditions, and I think it is a welcome change from the walk during a march to both men and horses; and, during a forced march, it seems a necessity. It is now used by the armies of Europe, and is prescribed in the drill regulations. One of our best cavalry officers, General MERRITT, recommends the trot, for ten or more minutes, twice, or oftener, during each hour of the march, and says: "Even the gallop for from seven to ten minutes will not be injurious in a well conducted command."

The following is given as the method of a march of thirty-two miles in the German army for a division of cavalry:

About 2 miles at a walk, half an hour.
" 2.33 " " trot, quarter of an hour.
" 2 " " walk, half an hour.
" 4.5 " " trot, half an hour.
" 2 " " walk, half an hour.
" 2.33 " " trot, quarter of an hour.
" 2 " " walk, half an hour.

17 miles in three and-a-half hours, with half an hour for short halts.

Ground halt for two or three hours.

About 2 miles at a walk, half an hour.
" 2.33 " " trot, quarter of an hour.
" 2 " " walk, half an hour.
" 2.33 " " trot, quarter of an hour.
" 2 " " walk, half an hour.
" 2.33 " " trot, quarter of an hour.
" 2 " " walk, half an hour.

15 miles in three and-a-quarter hours, with half an hour for short halts.

Captain W. D. BEACH, Third Cavalry.

Probably no officer present has had the field service with cavalry that Major WOODWARD has had and, for that reason, his opinions are entitled to very great weight. The trot, judging from our new drill regulations, seems to be the coming gait and, for one, I am heartily in favor of it. Used sparingly, in connection with the walk, I believe a command can be made to cover more ground with less fatigue and injury to the horses than by the walk alone.

The old and only gait for marches, the walk, as many of us know from experience, varied from two and three-quarters to four miles an hour, depending upon how rapidly the commanding officer's horse moved. Cooks were called at 3 A. M., and the command left camp "as soon thereafter as practicable," plodding along all day, barring the customary halts, and reaching camp toward sunset after a march of perhaps twenty-five miles.

For over two months last winter while on the lower Rio Grande, in command of a troop in the field, I habitually used the walk alternating with the trot, with excellent results. One day we covered forty-six measured miles, and the next thirty-six; while on several occasions the march was over thirty-five. Good stretches of level road only were used for the trot, which was at the rate of seven miles an hour; but, except in case of necessity, it was never used in

the first hour of the march. Including the usual halts, it was found that the entire march was at the rate of five miles an hour, which I should think could be accomplished almost as well by a much larger command.

I do not think that any large proportion of the cavalry horses in our service can be made to walk five miles an hour under any circumstances. Objections to the gallop that appeal very forcibly are that horses require much greater distances in column, usually fret and pull on the reins, while many hard-mouthed animals will take the charging gait if allowed to do so. This last tendency could doubtless be eradicated, and I will say that the squadron at this post, which is the best gaited I have ever seen, moves very smoothly at the gallop.

Captain C. W. TAYLOR, Ninth Cavalry.

I cannot agree with Major WOODWARD that the trot is not a cavalry gait; neither do I agree with others who may claim that it is the only gait for cavalry on the march. I am a believer in the three gaits: the walk, the trot and the gallop, and as a result of considerable experience in marching in different climates, I am convinced that the march is rendered much easier to man and horse by a judicious combination of the three.

I believe the trot is the natural gait for the majority of horses. Turn a horse loose, and up to a certain degree of speed he is more apt to trot than he is to walk or gallop. This gait is more easily taught than any other. It is a difficult matter to train a horse to walk four miles an hour when he has been born with a walk of three; while on the contrary, it is not very hard to train him to trot eight miles and gallop twelve per hour. My observation teaches me that it is a rare sight to see an Indian or cow pony moving at a walk, their ordinary gait being the trot and, when that is too slow, then the gallop.

For purposes of drill and instruction of troopers, the trot is the best gait, for the reason that a man taught to ride well at that gait will, without additional instruction, ride well at any other. Horses should be trained to take any of the three at command. I know of horses that, when moving at rapid gaits, will of their own volition (undoubtedly to rest themselves), change from a gallop to a trot, and *vice versa*.

At faster gaits than a walk men cannot lounge nor sleep in their saddles, and I observe as a result that sore backs are greatly dimin-

ished in number. Another point in favor of quick marches, and as a prevention against sore backs, is that the long-continued sweating of the back under saddle and occupant is relieved by getting early into camp and allowing the fresh air to come in contact therewith.

I believe that had Major WOODWARD been able to carefully observe the entire column on its remarkable march, to which he refers, that he would have noticed many horses trotting when the command was supposed to be at a gallop, and very many of them doing the same thing when they were presumed to walk.

Possibly the horse himself is the only absolute authority to which to appeal for a settlement of this question, but I am inclined to think that his answer, could he speak, would be much of the same tenor as that named in the fable of the Arab horse which, when asked by its rider whether it preferred to gallop up or down hill, replied, "Damn them both." I believe that the walk for a perpetual gait on the march is both a horse and man killer; they will both die of *ennui* if of nothing else.

First Lieutenant E. P. ANDRUS, Fifth Cavalry.

It has been my good fortune to have done most of my marching under General MERRITT, or others who learned the art of marching cavalry from that great master of it—PHILIP ST. GEORGE COOKE.

The longest march I ever made under General MERRITT was from the junction of the two branches of Stinking Water in Wyoming to Cheyenne, a distance of about 430 miles. With the exception of the last ninety miles, the command consisted of twelve troops of cavalry with their wagons. When the country permitted it, we marched each day at a walk, trot, and dismounted, the walk of course predominating. Our stock was always in good condition, and neither horses nor men appeared tired upon reaching camp.

I have marched under other commanding officers, who believed cavalry would be ruined by moving out of a slow walk; the result being that everybody, horses and men, were tired upon reaching camp; and, during the march it seemed that we never would get there. When horses trot the men cannot lounge in their saddles; and, by alternating the walk and trot, fewer sore backs are made than by the walk alone; while camp being made so much sooner, the horses have an opportunity of grazing.

Lieutenant GEORGE H. SANDS, Sixth Cavalry.

My experience has been very much the same as that of Captain BEACH and others, who have already commented on this subject. The active campaigns in the Southwest with notable cavalry officers, the ordinary scouting and hunting expeditions and the work on the drill ground, have led me to believe thoroughly in the "trot" as the gait for rapid marches and for drill maneuvers. Where the camping places are known in advance, the day's march should be made in time to allow of grazing, feeding and grooming, and rest for the horse as well as for the rider.

Experience has taught me that, with practice, the cavalryman will soon learn to place his saddle and adjust his seat at a point on the horse's back where the minimum amount of jarring is communicated to the rider. This once attained, the so-called rough trotter has no further terrors for him. I believe that the packs can be made tight and compact enough to avoid the multiplied jarring of the smaller articles, by the training and discipline of the drill ground, and no opportunity should be passed over which would lead to the desired state of excellence in "saddle packing."

Having been thrown with mounted Indians on several occasions, I fail to recall any instance wherein the "gallop" was the favorite gait for long distances. I am convinced that the gait predominating was a fox, or shambling trot. For marching, I advocate the trot, used in connection with the walk, so as to make the rate of traveling from six to eight miles an hour; for the drill ground, the trot, after the preliminary instructions. The gallop, with the cavalry burden, will rapidly wear out any animal.

Lieutenant W. S. SCOTT, First Cavalry.

It seems rather remarkable that we should be tonight discussing the gaits of an animal which has, for more than 3500 years, been domesticated and so universally used and intimately associated with man. It would seem that experience, as well as experiment, would have taught us long ago which were his best gaits for endurance, particularly for military purposes.

About the most authentic history of the horse of the earlier periods is to be found in the Bible, the first books of which are replete with information concerning him, so much so, that we can fix within a few years the date when he became domesticated, which seems to have been in Egypt, about 1740 B. C. Shortly after this time, he

became extensively used in warfare; nor has there been a period since when he has not figured more or less conspicuously in war.

First, he was used to draw chariots; and it is recorded that SESOSTRIS went to battle with 27,000 chariots drawn by horses. As time went on, man learned that the horse could bear a burden, and he thus became a cavalry horse. We are taught to regard the ancient war horse generally as an animal, however, that continually cavorted around on his hind feet, so there is little to be learned from the illustrations of the noble beast of that period as regards his capacity to trot.

Speaking of his being able to bear a burden reminds me that the analysis of the gaits should be taken into consideration. It would seem that the walk would be the gait most to his taste when he has a load on his back; since he never has all his feet off the ground at once, he would raise very many fewer foot-pounds in a day's march than in the trot or gallop, where every leap clears him of the ground and makes him actually lift his load a certain height. Since the trot is a gait of two diagonal beats, I believe there is less displacement of the center of gravity from the center of motion than at any other gait; and it is to make the two coincide that we aim to accomplish in placing the burden on the back.

But for the lifting of the load above spoken of, I should say the trot is the natural gait, and I do believe it is in harness. Nature seldom makes a mess of matters, and when we consider the swiftness, the grace and endurance of this gait, it would seem that nature had designed it. I consider the gallop too fatiguing on the march, except for short distances at long intervals. I believe it much better to walk and trot alternately during the day's march, arrive in camp early, remove the weight from the horse's back and allow him to graze, than to keep him plodding all day under a dead weight. Where time has been a principle factor, the trot and walk alternating has certainly proven very satisfactory, notably in cases of one cavalry command going to the relief of another, such as the relief of THORNBURG's command in 1879; the marches of the Ninth Cavalry in Dakota in 1890–91, as described by Lieutenant PERRY in the CAVALRY JOURNAL.

My own experience with small detachments on the frontier in pursuit of deserters has proven to my own satisfaction that the combined gaits are most satisfactory. The subalterns of the command to which I belonged had quite an extensive experience in the winter of 1890–91 on patrol duty in Dakota; they were all convinced that the combined gaits were most satisfactory.

Authorities differ as to the endurance of the horse under different gaits. Major DWYER says that a horse can be trained to travel with less fatigue at the trot than at any other gait. Captain DORST in the *Military Service Journal* says, that "We know that under the conditions of active field service horses will last longer marching at a steady walk, day after day, than when walking and trotting alternately."

All in all, I do not agree with Major WOODWARD, though he writes from extensive experience — a teacher far more to be respected than information obtained from books.

Lieutenant O. B. MEYER, Second Cavalry.

Judging from my limited experience, I should class the trot next to the walk in importance as a cavalry gait. I believe that its importance is steadily increasing with the changes in the use of cavalry in modern warfare. Cavalry is liable to be called into the field at any season of the year. The trot, I believe, is the only gait that will keep up the circulation in both man and horse while riding in very cold weather. In the winter of 1890, while serving in the field in Dakota, I found that by alternating the walk and trot I was best able to keep from being benumbed by the cold, dismounting and leading at times to prevent the feet from freezing. In using the word "trot" I mean the uniform gait of the trained horse, and not the haphazard gait taken up by an untrained horse. I see no reason why the cavalry horses, at those of our large posts where there are riding halls, trained in the hall during the winter months, cannot be taken onto the drill ground as soon as the ground hardens in the spring, there placed in charge of an officer who understands his business and be made to move at all gaits as uniformly as trained infantry, particular attention being paid to the walk and trot.

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I believe that for riding over long distances the extremes between the walk and gallop are too great; they have a tendency to nag a horse. Of course, if we are going to mount our troopers on Indian ponies or the cow-horses of the plains, then the walk and gallop are the proper gaits, but I think that under these circumstances we had better change the name of our mounted men and call them scouts.

Captain S. L. WOODWARD, Tenth Cavalry.

I have heard with interest the criticisms upon my essay, and am gratified that there is so little adverse to the especial point I have made. While great favor is given the trot, all appear to consider the walk as a campaign gait essentially necessary; and I beg that critics will not lose sight of the fact that I advocate more attention to the training of horses for this most important gait.

If men are so much in need of sleep that it is necessary to pound them over the road at a trot, it would be better to camp and take needful rest. I am aware of the fact that a slow walking horse is about the most tiresome brute in the world to ride, unless it is a hard trotter; but a good, springy, four-mile-an-hour walk is doubtless the easiest for long marches. A horse that cannot be trained to make nearly or quite four miles per hour is unsuitable for cavalry service. Proper supervision of a column by officers and non-commissioned officers will serve to prevent dozing or lounging in the saddle. A good rider can doze in his saddle without detriment to the horse. However, I do not advocate permitting this.

I believe the horses of SESOSTRIS' war chariots have always been represented as marching at a gallop. I do not believe, however, that they moved off a walk when changing station and marching over peaceable roads. The remarks of Lieutenant SCOTT as to the proper gait for a horse under pack (which is the normal condition of the American cavalry horse on the march) I entirely agree with.

The Tenth Cavalry as a regiment—thirty-eight officers and about 700 men—marched, in 1885, from Texas to Arizona. The dust was fearful, so that, although good intervals were maintained by squadrons and troops, men and horses were almost blinded and suffocated. I venture the assertion, that there was not an officer in that column who would not have considered it a most outlandish performance to have moved that command at a faster gait than a walk. Certainly Colonel WADE, who commanded the regiment from Fort Davis, Texas, to Bowie Station, Arizona, and Lieutenant-Colonel MCLELLAN, who commanded one squadron from there to Fort Verde, Arizona, did not consider it proper to do so; and these two officers have probably had as much cavalry experience as any now in active service.

I have marched thousands of miles, over good roads and bad, through dust and mud, over barren, desolate plains and mountain trails, under Generals GRIERSON and DAVIDSON, Colonels WADE, CARPENTER, MCLELLAN, and other well-known officers of from thirty to forty-five years' experience in active cavalry service, and I have yet to see troops moved, except in a great emergency, at a faster gait

than a walk. Dust or mud and rough roads or trails, will generally be the condition in this country in the movements of large or small bodies of cavalry; and the more attention officers give to the training of their horses to this gait the more efficient they will be.

One of the criticisms states that the "cooks were awakened at 3 A. M., and the command plodded along all day, reaching camp toward sunset, after a march of perhaps twenty-five miles." This was a case of gross mismanagement. I have been the victim of such myself; but it is no argument in favor of a trot. I have habitually left camp comfortably at 7 o'clock after grazing the animals from one to two hours, and made twenty-five miles before 2 o'clock. I do not think the troop of horses which I now command could do it as they have been trained principally in the trot, and scarcely know how to walk.

I believe it will be conceded that the squadron at this post, when moving at a canter or gallop, does so nearly as uniformly as at a trot, although they have not had one-fourth the practice at the former gait that they have had at the latter. Most animals can, in my opinion, be trained to do so much easier than to trot.

The following is clipped from a newspaper:

"FOGG says that there is only one objection, so far as he is concerned, to riding a trotting horse. The horse's back is always coming up when the rider is going down, and going down when the rider is coming up."

THE ACTION AND MINOR TACTICAL USE OF CAVALRY IN THE LIGHT OF THE WAR OF 1870–71.

By Second Lieutenant R. G. PAXTON, Tenth Cavalry.

CAVALRY action may be divided into three general classses, viz: (1) Shock action—delivered by a mounted line or echelon of lines; (2) Detached action—comprising all extended order formation and independent action; (3) Dismounted fire action.

Thus the cavalry leader has three different methods of accomplishing his object, of delivering his blow; while each has its own particular field or combination of circumstances wherein it is supreme.

The development of dismounted fire action is comparatively recent; there was but slight preparation for it in the German and French cavalry of 1870, and it was contrary to their universally accepted ideas of cavalry action. Nevertheless, we are told that all German officers who had experience in screening and reconnoitering duty—that province of cavalry which they grasped so completely and executed so thoroughly—have declared in favor of arming the trooper with a long-range carbine, and teaching him to use it on foot. And had the French displayed a corresponding curiosity concerning their enemies' movements, and confided their investigations to a cavalry armed and instructed as was our own in 1864, we can but believe that the German operations in screening and reconnoitering might have been attended by very different results.

Cavalry, capable of executing an effective dismounted fire, can be scattered broadcast, as it were, to a distance of many miles to the front and flanks of an army, without running the humiliating risk of being stopped by a handful of well posted infantry.

It is indeed to our own war that we must turn for all positive lessons in dismounted fire action; but that mode of action is so peculiarly suited to American ideas, so easily grasped by the Ameri-

can soldier, that we can well afford to turn to a foreign war for lessons in an employment of cavalry, in which we have much to learn.

At the same time, I do not wish to underrate the lessons taught us by our own war in every mode of cavalry action; for I do not believe that the history of the world can offer a better illustration of the triple use of cavalry than that presented by the battle of Gettysburg—BUFORD reconnoitering to the front and keeping touch with the enemy; then seizing the critical position, and holding it by dismounted fire action until the advance of the army; and, lastly, GREGG's mounted action on the right of the line of battle.

But we must never for a moment forget that dismounted action is exceptional, to be adopted only at considerable sacrifice of effective force, and only under peculiar conditions which render such a sacrifice desirable. Consequently it is not in the results to be produced by dismounted fire action that we are to find the *raison d'être* of cavalry.

But what results are we to expect from shock action? Take first a peace experiment. In a report of the German field maneuvers of 1879, we find as follows: "A regiment of lancers (400 strong), took advantage of cover afforded by the ground to charge in flank four battalions of infantry (4000). The surprise was so complete that the cavalry arrived within 200 yards of the enemy's flank in full charge before it was perceived, and was upon the infantry before any effective fire could be delivered." As a result of this charge Count VON MOLTKE decided that three battalions were placed *hors de combat.*

Thus it was decided by a most eminent strategist—one who had conducted two great wars to a most successful termination—that 400 mounted men had practically destroyed a body of 3000 infantry, whereas, if they had attempted to use dismounted action they could not have been expected to overthrow more than a company of 250 men.

As to the circumstances under which the cavalry charge should not be delivered, we have numerous examples on both sides, the most notable being the charges of MICHEL's brigade at Wörth, and of BONNEMAIN's division later on in the same battle. These charges were both frontal, against unshaken infantry and artillery, over a clear field of fire, both frontal and flank, some 1500 yards in extent; over ground that consisted of hop fields and vineyards, intersected by ditches, and sodden from recent heavy rains. Its mounted reserve was retained in either case. Even under such fatally adverse circumstances (and who can imagine worse?) the heavy loss incurred was

not without compensation. The three hours' time gained by the first were no mean consideration, for at the close of the battle the few remaining hours of daylight were very precious to the victors.

The charge of the French Imperial Guard at Vionville was almost without result, but was delivered from a distance of 2500 paces, against unshaken infantry supported by artillery, not surprised, and protected in front by obstacles that seem to have been unforeseen by the charging cavalry. The charges of the French cavalry on the field of Floing at Sedan, tell the same story.

We come now to the most brilliant performance of cavalry on the battle-field during that war—the well known charge of BREDOW's brigade. This too was a sacrifice charge to gain time for the arrival of reinforcements; but the conditions were more favorable, the ground was flat and suitable for cavalry.

The German Third Army Corps had been engaged for four hours against three-fold numbers closing BAZAINE's line of retreat upon Verdun. About 1 o'clock it was seriously threatened by an advance of the French Sixth Corps. BREDOW's brigade of six squadrons was ordered to break the front of this corps and, advancing in column, he deployed practically into one line echeloned slightly forward on the left. Charging forward he broke through the front line, the line of supports and the batteries, and sweeping on, was attacking the masses of troops and mitrailleuse batteries in rear, when, with his horses blown and his formation broken by the charge, he was attacked on both flanks by greatly superior numbers of French cavalry. The recall was sounded and the squadrons forced their way back through the lines that they had ridden over in their advance.

Of course the loss was very heavy, but the advance of the French Sixth Corps was completely paralyzed, and ample time was given for the approach of the German reinforcements.

During the advance over 1500 yards, until the first line of infantry was penetrated, it is estimated on the evidence of eye-witnesses, that not more than fifty horses fell—a trifling loss when compared with the end accomplished. The number of infantry whose fire action was brought to bear on the cavalry during the charge was not less than 8000, yet this body together with its supporting artillery was reduced to a state of complete inaction for the remainder of the day.

Now, such brilliant results having been achieved in the first part of the charge, let us consider how the subsequent disasters might have been avoided. Suppose a second line, similar to the first, had

followed some 500 yards in rear, completing the demoralization of the batteries and lines of infantry, penetrated by the first line but still able to do very material execution, as the remnants of BREDOW's squadrons found to their cost when they fought their way back over ground that had just been swept by their gallant charge. Then let reserves follow on either flank, held well in hand and the strength of their horses carefully preserved, to reap the fruits of a victory or to cover the withdrawal of the first lines. BREDOW might have retired in a very different manner had he had a reserve wherewith to oppose the charge of FORTON's fresh squadrons.

The Prussians were quick enough to grasp the fact that infantry must advance in a succession of lines; might they not have applied the same principles to cavalry with even greater advantage? And might not the first line have been extended in deference to the increased power of the breech-loader, reserving the wall-like shock for the second or some succeeding line that could be brought up comparatively intact?

These principles have, I believe, been adopted to some extent in drill regulations, but as they were not applied on either side during the War of 1870, we must make due allowance in making our deductions. We shall not hereafter expect the charge of great masses of cavalry to decide the battle, as at Eckmuhl, Borodino and Waterloo. We shall not expect 5000 horsemen, led by a SEIDLITZ, and aided only by a few rounds from some field-guns, to break and rout an entire army over 50,000 strong, as at Rossbach; but we shall still expect brilliant results to be obtained on the battle-field by the timely charge of a brigade, a regiment, or even a squadron.

We have now to consider the independent action of cavalry, comprising generally the screening, reconnoitering and outpost duties of that arm. If we form our conclusions from the results obtained in the War of 1870, we must admit that this is by far the most important duty that cavalry will have to perform. We find that the German armies, throughout their advance, were covered by a screen of cavalry distributed in bodies radiating from the front and flanks, and diminishing in size as the distance from the main column increased; thus the outer bodies were small patrols, often of not more than three or four men each, whose duties were to come into contact with the enemy, ascertain his position and numbers, hang on to him and continue to observe his every movement, make careful reconnaissance of the ground, and keep the army informed of the result

of all of these observations by frequent reports sent through the bodies in their rear.

For these outer patrols, alert, intelligent and well-instructed men were selected, and they very rarely failed in their object. If they met with opposition, they fell back upon supporting bodies in rear until sufficient strength was acquired to drive the enemy in; if unopposed, they pushed out several marches to the front, and if suddenly attacked, one or more of them almost invariably succeeded in getting back to make report.

Where the object of this duty was mainly reconnaissance as distinguished from screening, and necessitated operations at a great distance from supporting forces, the Germans evinced their appreciation of its importance by the frequent use that they made of officers' patrols. Considerable independence was allowed these officers; they knew what was wanted, and according to the Prussian spirit of centralized decentralization, they were informed of the end to be accomplished and left to work out the detailed method for themselves. Numerous instances might be cited of valuable service rendered by these officers' patrols; cases in which individual officers rode over eighty miles in a single day to bring in important information. The great value of such information to the German armies, and the manifold difficulties attending its acquisition, lead us to believe that Captain MAUDE knew whereof he spoke when he said: "There is no more royal road to distinction than the ability to write a concise and accurate report."

Nor was the German cavalry content with merely keeping up the contact with the front or rear of an enemy. When MCMAHON retreated from Wörth, his pursuer's cavalry enveloped his flanks and moved abreast of the heads of his columns. MCMAHON'S cavalry attempted no detached operations. Thus we see the explanation of what would at first seem inexplicable to the military student.

How was it that such a body of regular troops, under a practiced commander, after a defeat that was by no means overwhelming, should have been "unable to pause or exert any influence for good in the theater of war until an incessant retreat for nine days had carried them 200 miles from the scene of their defeat?" MCMAHON moved as one blind, his troops kept in a continual state of demoralization by the constant appearance of the enemy on his front, flanks and rear, while his pursuers advanced with that assurance and precision which can be acquired only from an exact knowledge of the enemy's movements and dispositions. MCMAHON'S communication with the other French forces in the theater was completely severed;

and he lost the opportunity of forming, with perfect ease, that junction with BAZAINE, which he attempted later in his flank march on Sedan, with such small prospect of success and such disastrous results.

Another incident of this pursuit gives an idea of the far reaching effects of such cavalry operations. Two regiments on MCMAHON'S flank entered Nancy; near this point they destroyed a railway junction and thereby prevented the French Sixth Corps from receiving its reserve artillery, ammunition and engineers. Shortly afterward we find the French Sixth Corps, a part of BAZAINE'S army, defending St. Privat against the German attack, and its want of artillery, ammunition and engineers, contributing largely to the defeat of the French in that battle.

But great as were the indirect results of the destruction of French communications by the Prussian cavalry, it is well known that Americans have not to go abroad for the study of cavalry raiding.

Throughout the advance upon Paris the German armies were covered by swarms of cavalry. The French cavalry was generally retained in their columns. The German armies advanced with perfect unity of action and mutual support, and met with unprecedented success in every engagement. The French moved blindly and without concert and met with nothing but defeat. While this may have been partly due to German numerical superiority and better preparation, the false and aimless movements on the one hand, and the prompt and concerted action on the other, prove conclusively that the information gained by the cavalry played no secondary part.

The detached operations of cavalry can be conducted only by troopers previously and thoroughly instructed in individual action. The open and widely diversified country surrounding many of our frontier posts affords every possible advantage for such instruction. The junior officers and non-commissioned officers should be thoroughly and practically trained in field reconnaissance, military sketching, and writing brief and intelligible, but at the same time comprehensive reports. Every individual soldier should have his faculty of observation, and of correctly reporting the results thereof, fully developed by actual practice.

Until this is done, the fact that we are the best marksmen, and possibly the best riders in the world, will be of but little avail.

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METHODS OF CARRYING THE CARBINE MOUNTED.

By First Lieutenant William H. Smith, Tenth U. S. Cavalry.

AS a new carbine, which will be lighter and shorter and better in every way than the one we now have, is one of the possibilities of the near future, a few remarks on the way it is carried in different cavalries may not be out of place.

The English carry the carbine in a long boot, which is attached to and hangs straight down from the right side of the cantle. The advantages of this method are, that the carbine hangs entirely in rear of the man's leg so that it does not interfere with his seat or the management of his horse. The barrel and lock mechanism are protected from the mud, so that it would never be necessary to dig the mud out of the muzzle and from the front sight before the carbine could be used, as so often happens with our present method of carrying it.

The disadvantages are, that the whole weight of the carbine is borne by one part of the saddle and, when any gait faster than a walk is taken up, there is a constant pounding or succession of blows on one part of the horse's back, which has a strong tendency to make a sore. This, by the way, may have something to do with the constant complaint of sore backs, of which we hear so much from the English service. In addition to the above disadvantage, should the trooper become unintentionally separated from his horse, as by a fall, or other accident, the horse would carry off the carbine, leaving the trooper practically defenseless.

The Germans carry the carbine in a short boot, which is swung from the right side of the pommel in such a way that the muzzle points to the front and downwards and the stock extends back over the right thigh. This seems about as awkward a method of carrying the carbine as could well be devised, and has only one advantage as

far as the writer could see—that of not interfering with the movement of the trooper's leg in managing his horse.

The French carry the carbine slung across the trooper's back by a strap very similar to the one on our infantry rifle. This, from a theoretical point of view, seems to be the best method of carrying the carbine. It combines all the advantages—that of being always present with the trooper without tying him to his horse when mounted, as our method does; the weight of the carbine is transmitted to the horse through the cushion of the man; it does not interfere in the slightest with the trooper's seat or the use of his legs; it is entirely out of the way in mounting and dismounting; it can be readily unslung and made ready for use; none of the parts are liable to injury by rubbing or being bent out of shape, and it is to a certain extent a protection from saber-cuts from the rear.

The only question is, whether or not the discomfort of the trooper is sufficiently great to counterbalance these advantages. The writer, during the summer of 1891, spent some three weeks visiting different French garrisons, and he asked probably a score or more of French troopers and quite a number of officers, if much discomfort was felt in carrying the carbine across the back, and they invariably answered, "No, not after a little practice." They stated that, when a recruit first began carrying his carbine at mounted drills, it made him a little sore for probably a week or ten days, but that he never noticed it afterward. And it must be remembered that the French drill much more, and at more rapid gaits, than is customary in our service.

The Russians also carry the carbine in this way. The following is an extract from Captain F. V. GREEN'S "Russian Campaign in Turkey": "The muskets and carbines carried by mounted troops are all protected by a leather case, and are always worn slung over the shoulder from left to right, the muzzle up and projecting above the left shoulder, the butt behind the right thigh. This method of carrying the gun was adopted after competitive trials between it and the manner of hanging from a sling, muzzle down, in use in our service."

Our present method of carring the carbine has all the disadvantages, and none of the advantages possessed by the other methods mentioned The carbine is very much in the way mounting and dismounting. It ties the man to the horse, rendering it almost impossible for a man to save himself by jumping off, in case his horse falls. The writer has knowledge of several men who were seriously hurt by having their carbine-sling attached to the carbine, when mounted

as contemplated by our Regulations. The weight of the carbine is all borne on one part of the saddle; it cramps the use of the trooper's right leg, deranging his seat and preventing him from using that leg, except to a very limited extent, in managing his horse; the rear sight is always getting bent and worn. The writer has several times seen from ten to twenty rear sights in a troop rendered unserviceable by a few months' mounted drill.

In muddy weather, the muzzle gets clogged up with mud so that it is sometimes necessary to occupy several minutes in cleaning it out before the carbine can be fired. The writer remembers to have examined the carbines of a troop of cavalry which had made a march of about twenty miles over a muddy road, and fully one-third of them were so clogged with mud about the muzzle that no accurate aim could have been taken on account of the front sights being entirely hidden; nor could the carbines have been fired without danger of rendering them unserviceable, on account of the muzzle being filled up with mud. In fact, our method of carrying the carbine seems akin to our regulation bit, in that it has nothing whatever to recommend it. And it seems inexplicable that a board of experienced cavalry officers could have recommended either.

As to the other method of carrying the carbine, sometimes used in our service, viz; the "cow-boy" method, under the left leg, it has all the disadvantages mentioned under the head of the English method, besides deranging the seat and interfering with the use of the leg.

FOURTH OF JULY EXERCISES.

By First Lieutenant M. F. STEELE, Eighth Cavalry.

ARE the exercises now customary at our military posts in commemoration of Independence Day what they ought to be? This is a question worthy of some consideration. The first point to settle is, what are the exercises for? The answer is, for the pleasure and amusement of the garrison, mainly the enlisted men. But not them alone; every person of the garrison ought to take an interest in them, either as spectator or participant. Actors play best to a full house, and a house full of sympathy and enthusiasm. So these sports, to be entirely successful, must entertain all, must have applause from the ladies, shouts of joy from the children—the gallery as it were—and cheers of encouragement and rivalry from officers and men.

The partisan excitement of these, however, must be kept within bounds and not allowed to reach bellicose proportions. Such a state with officers usually effervesces in the form of words and froth; not always so with the men. Most of us have known the Fourth of July tug-of-war between two troops, and the barrel of beer thereafter, to be followed by war in reality, and its aftermath, the guard-house. This is not a fitting sequel to the celebration of our most cherished holiday. There ought to be nothing in a soldier's recollection of the Fourth of July, which could make him wish it had not been.

But tugs-of-war and base ball and foot races and many other of the usual Fourth of July games are manly and well enough, if there were not at hand something better and more suited to the occasion and the participants. But are there not other sports in which soldiers could engage, more to their own craft and equally entertaining to them? Base ball professionals don't celebrate their holidays by playing soldier; why should we borrow their trade for our holiday contests? Cannot we find athletic exercises within our own calling just as pleasure-giving and more to our profit than any we can borrow from others?

The National Guard sets us the example with their competitive drills. Why not take up their trail in this and outstrip them, as we have done in the shooting matches they taught us at Creedmoor?

If any one doubts that interest is taken in their competitions, he needs only to see a successful company return to its home town, to have all his doubts cast before the winds. The evening the Fencibles of Washington got back from their successful contest at Omaha, the whole city appeared to have turned out to greet them, and to have gone crazy with welcome. Their triumphant march down Pennsylvania Avenue, under a skyful of torches, and behind an array of brooms held aloft, suggestive of their "clean sweep," was one of the grandest and noisiest spectacles one could witness. The shouts and yells of delight and pride that rose from the thousands of throats along their way could not have been louder or more sincere if the Fencibles had come back from the conquest of a nation. The crowd that turned out to see the "grizzled veterans of the sixties" march over the same course a few weeks later, was larger, because the Grand Army brought 300,000 strangers to the city with them; but its enthusiasm was that of a Quaker meeting beside that of a Methodist revival.

But we don't want any fours-right-and-left competitive drills for our holiday sports. Wherein would be the holiday? We can get enough of this healthful exercise to keep our bodies in sound, active condition, with our regular drills daily, "Saturdays and Sundays excepted." But with a drill book as full of varied and interesting athletic exercises as ours is, no cavalry garrison must needs go far out of the way of their own subject, to find entertaining sports for the Fourth of July or any other day.

Is it not a pity that the news correspondents at our military posts should be subjected to the humiliation of sending to their papers such Fourth of July "stuff" as we read, or rather don't read, in our army papers now-a-days? Two of these, anent the last Fourth, may be quoted for the purpose of the point. Thus the first: "The glorious Fourth was celebrated in fine style here by races, games, etc., lasting from 7:30 A. M. until 9 P. M. I enclose a list of the sports with names of prize winners. The base ball game and tug-of-war attracted the most attention, but the high-kicking, potato and wheelbarrow races, made lots of fun." With an energy that wore from half-past seven in the morning to nine o'clock in the evening, what excellent timber there was in this garrison for military athletic sports! And it speaks well for the good taste and manly spirit, that the tug-of-war and the game of ball were most appreciated.

The other letter runs as follows: "After the National salute, a

parade of the infantry and a show drill by the cavalry, and the usual athletic sports and exercises of the men—foot races, potato races, wheelbarrow, sack and three-legged races."

Of the lists here, the foot race is the only contest having any relation to the military profession; and the further it is kept apart from it the better. The fleetest of foot is not always the first to reach the enemy's line, and men do not need to be trained in getting away from the fight in a hurry. Slow feet can bear a strong heart forward faster than swift legs a faint one; but the latter may be a temptation to quit the field with undue haste.

The wheelbarrow, with its comrades, the pick and the shovel, has played a considerable part in the garrison life of our soldiers; but already we see hopeful signs of its giving way to the saber and carbine.

For lack of knowledge, I can have nothing to say of the potato race, which figured at both posts, or the three-legged race. I have never seen either, and look in vain for explanation of them in the handbooks of sports, in which polo and golf and other athletic games are described. Sack races have, since the days of slavery, been a favorite amusement among the negroes at the South. Our correspondents said nothing of the greased pole or the greased pig, but these cannot have been left out of the programs. Doubtless they were included in the "etc." It is to be presumed that there was no convenient pond for the tub race, and no available goose for the "gander pull." But surely the Quartermaster could have entered stock for the slow mule race.

Now, instead of all or any of these, which afford only fun, and this of not the highest order, can we not have a program of sports for our favorite holiday that will give amusement and entertainment, and at the same time encourage soldiers in the attainment of skill in their own chosen trade? And even more. Can we not make of the day a lesson in patriotism? Might we not include some feature that would suggest, in terms plain enough to be understood by the newest Norwegian recruit, why this day is specially selected to lay aside all duties "except the necessary guard and fatigue?" I would not propose a spread-eagle speech, but it might be well enough to open the day as the cadets do at the Military Academy, by reading the Declaration of Independence;* then let the military sports follow.

*I asked five enlisted men the question: "Why is the 4th of July celebrated as a National holiday?" Not one of them was able to answer the question. One of these five men was a recruit; another was a trumpeter, an American, in his second enlistment; another was a German, in his second enlistment; another was an Irishman, in his seventeenth year of service; and the fifth was a colored trooper. I would also say that these five men represented the patriotic ignorance of four of our cavalry regiments.

When it comes to mentioning exercises that would be suitable for the program, the only difficulty is to select. The cavalry drill regulations are full of them.

One of the favorite sports among the young folk in some sections of our country, is the "tournament," a harmless relic of the old jousts, in which our nowaday knights tilt at gay-trimmed rings, instead of at one another. For months before the day of the tournament, the young men are practicing for the contest; and, as one rides along the country roads, it is no unusual thing to see beside the farm fence a line of little wooden scaffolds with rings dangling from them, and a well ridden track along under them. Each man that enters the contest rides for his sweetheart, and the winner crowns his queen. Prizes are awarded, too, one of which is always to the best horseman. Why can we not have something of this kind for the enlisted men, only substituting the saber, decked with ribbons if they please, for the gilded and decorated lance used in the tournament of the civilian?

Instead of the tug-of-war, which does well enough for sailors and foot-soldiers, let us have wrestling on horse-back. In this, one troop might be put, man to man, against another.

Instead of sparring matches, let us have fencing with wooden sabers, mounted.

Give a prize to the man who has the best trained horse, taking into account all things that go to make up the training of a perfect cavalry horse—the horse that is thoroughly obedient to his rider's will; that is steady in ranks; that can be ridden out of the rank and away without a neigh or a show of opposition; that will take the cavalry paces and at the prescribed speed at the will of his rider; that will stand pistol fire without so much as the twitch of an ear; that will try any hurdle or ditch his rider puts him at; that fears nothing so long as his master is on his back; and (since it is part of the training given in the drill-book, and is something easily taught a horse) that will lie down at the command of his master, whether he be on his back or on the ground.

Let a prize go to the best horseman, each contestant to ride his own horse; and another to the best rough-rider, if a bucking bronco is at hand to practice upon. Still another prize might be given to the man most expert in the horse-back gymnastics prescribed in the drill-book, and another to the one most dexterous in the saber exercise, etc., etc.

Horse-racing is sometimes a feature of Fourth of July programs at cavalry posts. Is this not a bad practice both for troopers and

troop horses? Is a horse really ever fit for the ranks after he has once run on the track? We are taught that all our training and drill is mainly to prepare for the charge, and that this is the true test of cavalry. Is not the race-horse very liable to bolt as soon as the charge begins? He has been trained to outrun his fellows, and he will do his best to prove his education.

And as to the men. Horse-racing in a troop, especially where the troop officers take extreme interest in it, encourages among the men a spirit of gambling, which every one will admit is hurtful to discipline. Without considering it from a moral point of view, what is the practical effect of gambling in a troop? In a garrison? Does it not rob the innocent many of their small pay to fill the pockets of a few sharpers, professional black-legs, perhaps, who have enlisted for the sole purpose of plucking their comrades? It leaves debts at the Exchange and with the laundress and the barber and the troop shoemaker, and often leads to desperation and desertion.

THE U. S. CAVALRY REMOUNT.

By GERALD E. GRIFFIN, D. V. S., Veterinarian, Fifth U. S. Cavalry.

IT is a fact, well recognized by those most immediately interested in the matter, viz: cavalry regimental, squadron and troop commanders, that the cavalry remounts furnished the U. S. Service are, with each succeeding year, becoming more inferior in every essential attribute that goes to make up a cavalry horse. By this it is meant that those animals are more leggy, more narrow-chested, more flat or slab-sided, more goose-rumped, and more slim-barreled, without any of the corresponding compensations.

But these, although serious defects in themselves, are reduced to comparative insignificance by the marked tendency of the animals in question to exhibit a poor conformation of the legs and feet, although one of the prime essentials of a cavalry horse is that he possess a sound and well proportioned locomotory apparatus. Another point of degeneracy, often noticed and remarked upon by troop commanders, is that the standard of intelligence in relation to remounts is on the decrease; and although the head of the animal appears to increase in size, the volume of the cerebrum seems not to present any such appearance; and although they may remain with the troop for two or more years, they still continue stupid and dull, even when the climatic influences are in their favor.

The horses now furnished for remounts are more subject to sidebone, ringbone, splints and spavins than formerly; this can be, without error, attributed to weakness of bone and defective conformation. The backs are longer, and very often present an inclined plane, which is a vile defect in a saddle animal. The long gander neck, to which is attached a large head with long, sluggish ears, is seen more frequently, and the vacant looking physiognomy and unexpressive eye are considered almost as a part of the cavalry remount. So much has this impressed itself upon cavalrymen gener-

ally that when an animal arrives that shows marks of intelligence, he is immediately put down as being vicious, or defective in some prominent quality, and as having been sold into the cavalry service for that reason.

Nearly all the horses furnished are hard to keep in fair condition; they possess poor staying qualities and are easily fatigued. The greater number are too large, for it has been demonstrated again and again in European armies, as well as in our own, that the more compact the cavalry animal is, the more labor he can perform; and everything else being equal—the weight of rider and equipment remaining the same—the smaller horse will outlast and do more work than the heavier animal in the field; while in the garrison his vitality is greater, he is easier kept, and the mortality and liability to disease reduced almost one-half.

There is, however, one point in favor of the animal now furnished, his color is continually improving; this is especially the case with the bays.

In striking contrast to the degeneracy of the cavalry horse is the continued excellence of the mules purchased for military purposes; this contrast is probably due to the steady demand for mules for draft purposes alone.

Why cannot the service purchase as good a grade of cavalry horse for the same sum now as it did ten years ago? The principal reason is that the tendency on the part of the small farmer, from whom the supply of remounts is largely obtained, is to breed for "roadsters," as the price paid for this class of horse is greater than that paid for "streeters" or tram car horses, which after all is about the kind of animal furnished the U. S. cavalry service. It must be admitted, however, that the demand for saddle horses is on the increase all over the country since equestrian exercise has become so popular; but the saddle animal desired for this class of trade, is, in every respect, superior to the miserable looking cavalry remount; and those who produce for this market would never think of raising saddle horses for the cavalry service at the present price paid by the Government.

Why are the defects in the remounts now furnished so numerous? Because in his effort to breed up to trotters or "roadsters" from poor dams and cheap sires, the small farmer who breeds horses as he would plant a crop of corn, loses sight of the eternal fitness of things and sacrifices everything to leg and "reach;" and when we have added on to this length of leg, the big head of the trotting strain, the flat foot inherited from some lymphatic dam, the bone

out of proportion, and the long, half developed neck, part trotter, part chunk, is it to be wondered at that the majority of the present supply of remounts offend the eye and sensibilities of the true cavalryman? It has been remarked that the color is improving; this is due to the solid colors of the mongrel trotting sires who inherit them from *their* standard sires and bequeath them to their progeny.

Cannot the farmer raise a good saddle horse and sell it to the Government for $150.00? Let us see. A farmer has a good mare; the question with him is, will he breed to a local trotting stallion, paying from $25.00 to $100.00 for the privilege, and raise a good roadster which may develop into a "Keno F." or a "Nancy Hanks," and possibly sell for from $250.00 to $500.00? Or will he breed to a saddle stallion (which by the way are scarce), paying in the neighborhood of $40.00 for the service, keep the offspring for at least five years and sell to the United States for $150.00? In the farmer's place, the writer would breed to the trotting strain every time and run chances on receiving a large price for the product, especially when it is remembered that the horse cannot be sold to the Government until five years old; and then, if he uses him for driving or hauling in the interim, he impairs his saddle qualities considerably.

Within the past few years the writer has frequently read articles in military journals referring to the gaiting of cavalry horses, their saddling, bitting, etc., and has noticed two or three schemes suggested therein for improving the quality of cavalry remounts. One of the latter, which, by the way, is the best, going so far as to propose the establishment of a Government horse-breeding farm.

As to the gaiting of the horse now furnished, it is a waste of time and patience except in a few cases; for one might as well endeavor to give a saddle gait to a cow as to give it to the great majority of the present remounts. What, it is asked, can one do in this direction with a mongrel, stupid, bull-headed, thick-skulled brute, who only possesses intelligence enough to know when he is hungry; and who, after years of drilling and training, even in the hands of a competent rider and fair trainer, will make a right or left turn or wheel in obedience to the bridle as awkardly as if he were a dismasted lugger in a heavy seaway, except to "pound him along" as the service expression has it, until he "plays out;" then condemn him and have him replaced by his full brother or some near relation. You cannot saddle him properly, as his back is generally built for a dump cart harness; and it matters not whether your theory is to place your saddle over his kidneys and girth him around the abdomen or use a fore and aft girth and place the saddle on his withers, the position

will change fifty times a day on the march, and sore back be the result.

With the real saddle animal, raised for this purpose, the saddle will set exactly where it belongs and under all ordinary circumstances remain there, even though the girth should slacken; and something might be done as to bitting, but not with the present instrument of torture. The present bit has, however, a redeeming quality for which it has never been given credit so far as is known; the curb strap slot is referred to, it being furnished with cutting edges that can in a few days bite through the strap with ordinary use, thus preventing the rider from fracturing the animal's lower jaw while, at the same time, it gives the horse a chance to run away and thus square accounts with his rider for having pulled too hard on the reins.

The Government breeding-farm idea is a good one and is deserving of serious attention; but until this idea has passed through the circumlocution office, which may be in twenty years from now, the only means at hand for improving on the present quality of cavalry horses is to increase the price paid by the Government to two hundred dollars each, and purchase the animals from the producer. This can be done by the service as well as by contractors or by express companies and other large horse-using concerns. It should be done by a board of officers detailed from the regiment for which the remounts are intended, and the board should be held financially responsible for all defective animals furnished. The board should be named by the regimental commander, and composed of those officers who can tell the difference between a horse and a "plug." The age should be from five to six years, and as the horse is only fully developed at this age, no animal should be taken below this standard. Greys and roans should not be purchased, except a few of the former for bands; greys are too conspicuous in the field, while it is difficult to collect a troop of uniform color in roans. In the present state of the cavalry service, the writer cannot see why mares could not be used to advantage as well as geldings, mares being more tractable, more easily managed and more intelligent.

It may be objected that two hundred dollars each is too high a price to pay for remounts; but when the class of animal is taken into consideration, the length of time he will be serviceable and his perfect adaptation to the service demanded of him, it will be admitted that the number of animals condemned annually will be reduced at least one-half; consequently, the number to be purchased will be reduced to a corresponding extent, and the liability to disease will

be greatly reduced because the horse will be more competent to perform the work required of him.

There are very few cavalry officers in the service today who would voluntarily use the regulation bit on their own private mounts, but they are forced to use it on the troop horse. This plainly shows that the regulation article is not looked upon favorably by those who are in a position to observe its practical workings. A stout, nickel-plated Daniel's bit, with three sizes of sliding bars, and with a nickel-plated curb chain, should be adopted and used upon all cavalry horses; it is as effective as the bit now furnished, and is more humane. Aluminium bits might be used instead of nickel-plated iron or steel.

The veterinarians in the service, who may read this article, will probably be surprised that any interest outside of a sick animal should be manifested by one of their colleagues in the army. The writer will admit that the present pay and prospects are indeed a poor inducement to excite interest in one of our number on subjects military, outside of our immediate duties. But the class of horses furnished for remounts is degenerating so fast, while the class of recruits now enlisted (since regimental recruiting has become the fashion), is so vastly improved that he (the writer) has been forced out of his accustomed rut in an endeavor to have the remount keep pace with the advancement in intelligence of the product of the new system of recruiting and, while out of it, to place the cavalry horse question and a few kindred subjects in what he believes to be their true light.

PROFESSIONAL NOTES.

REMARKS ON THE GERMAN CAVALRY.

I hope that the author of "The Tactical Use of Mounted Troops," Vol. V., No. 18, JOURNAL of the Association, will excuse me for taking exception to some of his statements and conclusions concerning the German cavalry.

The Germans may not be the best horsemen in the world; I do not think that their best riders by any means equal ours; but I have seen some riding, much of it in fact, among our own officers and men, which for poorness cannot be equaled in any of the many German regiments that I have seen. What the German lacks by nature he most certainly succeeds in making up for by thorough, conscientious, systematic hard work. The German recruit is not put on badly broken horses with clumsy, worthless bits, and then put through the saber exercise before he has any idea of how to control his horse. Nor is the average intelligence of the non-commissioned officers and men of the German cavalry to be compared so easily with that of our own men. Let me dwell on the word average; the non-commissioned officers of the German cavalry are all old soldiers who have reënlisted for the purpose of being promoted, and they are masters of their trade as it is taught them. The captain is responsible for these men, and he can little afford to present inefficient men at the many inspections, and sanction them as his ideal of perfect soldiers.

In the brigade with which I served in Düsseldorf, all the privates were volunteers coming a year or two ahead of time in order to get in the cavalry. They were young, athletic men, most of them sons of well-to-do parents, nearly all receiving liberal allowances of money from home, all having exceptionally good private uniforms which they were allowed to wear when off duty, even to lighter, better made sabers. This does not include the "one year volunteers," young men of the best classes of society, including noblemen, who, on passing the necessary examination, serve but one year. During this year they receive the successive non-commissioned grades and, finally, return to the cavalry or train as reserve officers; the course of

instruction that this class receives, the maps made by them, and their military theses might well be used as models at West Point itself.

To return to practical instruction. The oldest and best horses are selected for the recruits after the maneuvers; and they keep up about two hours hard drill each day from October till April*, when they are presented for inspection. One of the troop officers has charge of them permanently and, under him, the senior non-commissioned officers instruct permanent squads, each emulating the other. They ride first on blankets, then with saddles and stirrups, finally on saddles without stirrups; briefly, the result is that, at the inspections, these men go through the school of the trooper perfectly with both lance and saber. One feat is to go at a run through the long jumping chute, over four bars and hurdles, two embankments onto which the horse jumps, then over an artificial hill with hurdles half way up and half way down, two ditches and a hurdle with ditch. All this without stirrups, the reins loose on the horse's neck and the lance held horizontally over the head with both arms extended. Every man must do this, no exception.

After this comes the work at the headposts; straw heads, about six inches in diameter, on posts with sliding weights to draw the displaced head back into position, serve as targets, the heads being at about the height of the trooper's chest. Leaving out the theory on the subject, I can testify that very few of these heads are missed; and from personal experience I did not find the lance by any means such an inaccurate weapon. The targets on the ground are straw heads pinned to a two-foot rope and uniforms stuffed with hay; they are not missed any oftener than the heads on the posts and, when they are missed, no catastrophe occurs due to the manner in which the thrust is made: the lance vertical, point down, hand about height of the trooper's head, back of hand to rear; the lance is simply dropped down with slight effort; it revolves on the wrist as an axis, whirls into place, being caught under the arm, horizontal, point to the front, and the trooper reverses his hand. I have never seen a lancer unhorsed while practicing at heads. However, all this discussion about the lance can, in my humble opinion, have very little practical use for us.

During my tour of service with the German cavalry, I heard arguments for and against the lance in combat; cases even cited by the score, until I became thoroughly confused on the subject. Fencing with the lance convinced me that, if I met a lancer and we both had all the room we wanted, I would shoot at him from a good distance and leave him all my room. As everyone is allowed to give his theory, mine is, that two unsupported thin lines (single rank) charging, all other things being equal, one with lance and one with saber, the casualties resulting from the first shock with the lance would cause the sabers to flee, and in the flight they would suffer

* A West Point cadet gets ten rides per month, ten months per year; in three years about 300 rides. A German recruit gets two hours per day, six days a week; in twenty-six weeks 156 rides

extremely unless they had very fleet horses. Now, double and triple these lines, so that two or three shocks would occur in rapid succession, bringing on a real hand-to-hand fight, and suppose the sabers to be short for quickness, blades thick, sharp, almost straight, and well pointed, with handles fashioned for the human hand (see the new Prussian cavalry saber), and in good, active, plucky hands, I believe the lancers would leave the field and leave a good many of themselves on it.

The question then comes, "Will the saber cavalry have time to form its two or three lines?" We must imagine a quick, decisive movement, with long columns stretched out under cover from artillery fire, that must be suddenly got into shape, to make this compact, overwhelming, sweeping charge, the rear lines being close enough to prevent the first shock of the lancers from hurling their first line back upon them. I must say that such a problem presents more difficulty to me than to the friend of General DRAGOMIROFF, who, with virgin parade sword, tightly wedged in its scabbard, and probably hanging on the study wall, bores everyone with theories on fencing.

The lance is out of the question with us Americans; our country is not made for it. I experimented once with some troopers going through a forest, and that settled my views on the lance. I have exercised with it on a cold, wet day, and that prejudiced me against it. I have seen troops of lancers dismount to fight on foot, and that did not come up to the American ideal of this not unimportant function. I believe that, going on in our way, mounting our men as we do, training them (or rather not training them) as we do, and getting some of the specimens that we do, it would not pay us to make any charges against European cavalry, except as a matter of interest for the latter. On the contrary, give us real American riders, a good bit and half decent horses, a systematic method for training the *individual* man and horse, inexorable, unflinching daily drill, if only one hour a day, and we will soon show better results.

We must have drill every day, even if each post must build a house to drill in. Our friends in Quebec don't stop drilling, and they have a hard climate up on that plateau. It does not take a grand structure with iron arches to suffice for a riding hall. The regiments that I saw last winter in Düsseldorf had little halls, thirty yards by sixty; some of the old dilapidated sheds of the other regiments were not even that size. Into these rough shops go awkward, nervous remounts and raw recruits in the autumn; from them, in the spring, come cool, sharp-stepping, flexible chargers and soldiers, upon whom the world looks as the equal, if not the best of any on the continent. Excepting the horses ridden by recruits, the others get but *one hour's* exercise in the day.

I will not enter into the detail of the practical method in which the winter training is conducted. Suffice it to say that, as a result, every horse in the ninety-three regiments steps the same number of yards in the same time at the various gaits. Let a brigade from

Pomerania be put in division with one in Alsace, and it is like setting together two blades of the same scissors. There is utility in this that needs no further discussion among practical Americans. But to come home again. We seem to have the best saddle in the world, and we made it ourselves. No other approaches it. Why can we not have the best saber? We believe in the saber; our cavalry does; and it will make others believe in it, the chance occurring. Ours is not a good saber; it has a bad handle, a bad grip, bad guard and bad steel in the blade, which is not shaped well. A great many people in our supply departments do not believe in the saber as a weapon; but it strikes me that the average carpenter, or other skilled mechanic does not depend on the storekeeper for the perfection of his tools; then why should we be compelled to depend on any judgment but our own? We expect to use these weapons, and it would seem that our opinions should have some weight.

POWHATAN H. CLARKE,
First Lieutenant, Tenth Cavalry.

GRAPHIC COMPARISON OF THE ACTION OF THE SHOEMAKER AND DWYER BITS.

In the accompanying figure, AB represents a wooden bar, to which rubber bands are attached at O, D and D^1 by means of small screws; and strings at E and E^1 by means of tacks. Distances: DO is one and three-quarters inches; OE is three and one-half inches; OD^1 is two inches; OE^1 is five and one-half inches. Thus arranged, the bar is placed on a wooden board and opposite O, at a distance of one and three quarters inches a nail, G, is driven on one side; and on the other a nail, C, at a distance from O equal to distance DG. Put the bands DG and OC over the nails G and C taut, yet so they exert little or no pull. Take hold of the string EF. We now have a bar, DE, of the same dimensions, and similarly acted on, as a bit constructed on the Dwyer principle, properly placed. Pull on the string FE until E moves to E_2, four inches from E. DE takes the position D_2E_2; O moves to O_2, a distance of $\frac{22}{20}$ inches; D moves to D_2, a distance of $\frac{10}{20}$ inches.

We assume that the distance passed over by a point represents the force transmitted to that point; therefore, the force transmitted to O, as compared to the force transmitted to D, is as 22 is to 10; that is, with the Dwyer bit a pull on the reins equal to the pull we applied to E would produce an effect on the bars of a horse's mouth, that, compared to the effect on the chin-groove, would be as 22 is to 10, or the effect on the bars would be two and one-fifth times the effect on the chin-groove, which is as it should be.

Detach the band DG and put on the one D^1G; put the band OC out to OC^1; let go the string EF and take hold of the one E^1F^1. We now have a bar D^1E^1 of the same dimensions, and similarly acted on, as the Shoemaker bit when properly placed. Pull until E

moves four inches; O moves to O^1, a distance of $\frac{22}{20}$ inches; D^1 moves to D^1_2, a distance of $\frac{26}{20}$ inches. Therefore, the pull given applied to reins of the Shoemaker bit would transmit a force to the bars of the horse's mouth, that, compared to the force transmitted to the chin-groove, would be as 22 is to 26, or the force exerted on the chin-groove is $1\frac{2}{11}$ times the force exerted on the bars. Consequently, the horse attempts to avoid the curb-strap and pokes out his nose; while with the Dwyer bit, he attempts to avoid the mouth-piece and lowers his nose.

S. D. ROCKENBACH,
Second Lieutenant, Tenth Cavalry.

A LIGHTER HORSE-SHOE.

Horse-shoeing has long been considered a necessary evil, and all our studies should be directed toward its application in a manner that can effect the least possible harm. Nature has provided a horny case for the foot, which is adequate so long as the animal treads upon soft verdure, which at the same time affords him nutriment; as soon as art, however, removes him from his native fields to hard and gravelly roads, this defense is no longer sufficient protection; therefore it becomes necessary to guard even the hoof. This we do by nailing upon it a rim or half-circle of iron, which we denominate a *shoe*. The essential difference between the natural defense and the one art has invented, is that the former, while it is sufficient for ordinary protection, is yielding and elastic, while the iron shoe puts a total stop to all that play of the horny case with which nature has endowed it.

Shoeing is an almost unavoidable consequence of the horse's domestication, and we are at times driven to the conclusion that an artificial protection of some kind for the horse's foot is very frequently one of the penalties which civilization exacts. There is, however, a large and important class of horses to which shoes are not an absolute necessity, namely, our agricultural horses. The nature of their work, the slow pace at which it is performed, and the character of the ground over which they toil, all unite to render artificial protection for their feet, save under exceptional circumstances uncalled for. Among army horses which are called upon to do a great amount of traveling and load-carrying on mountainous and rocky roads, the horn composing the hoof undergoes an amount of wear greater than nature can compensate; and should the feet be left unprotected for any length of time, the living sensitive structures within would become exposed and irritated by contact with the ground, give rise to pain, lameness, and inability to work. To guard against this serious result, several shoes have been devised, some of which showed good results, others proved worthless.

In recent times the "Goodenough" shoe has had wonderful qualities claimed for it. It differs but little from the ordinary hunting shoe; it has several projections cut on the outer margin of its

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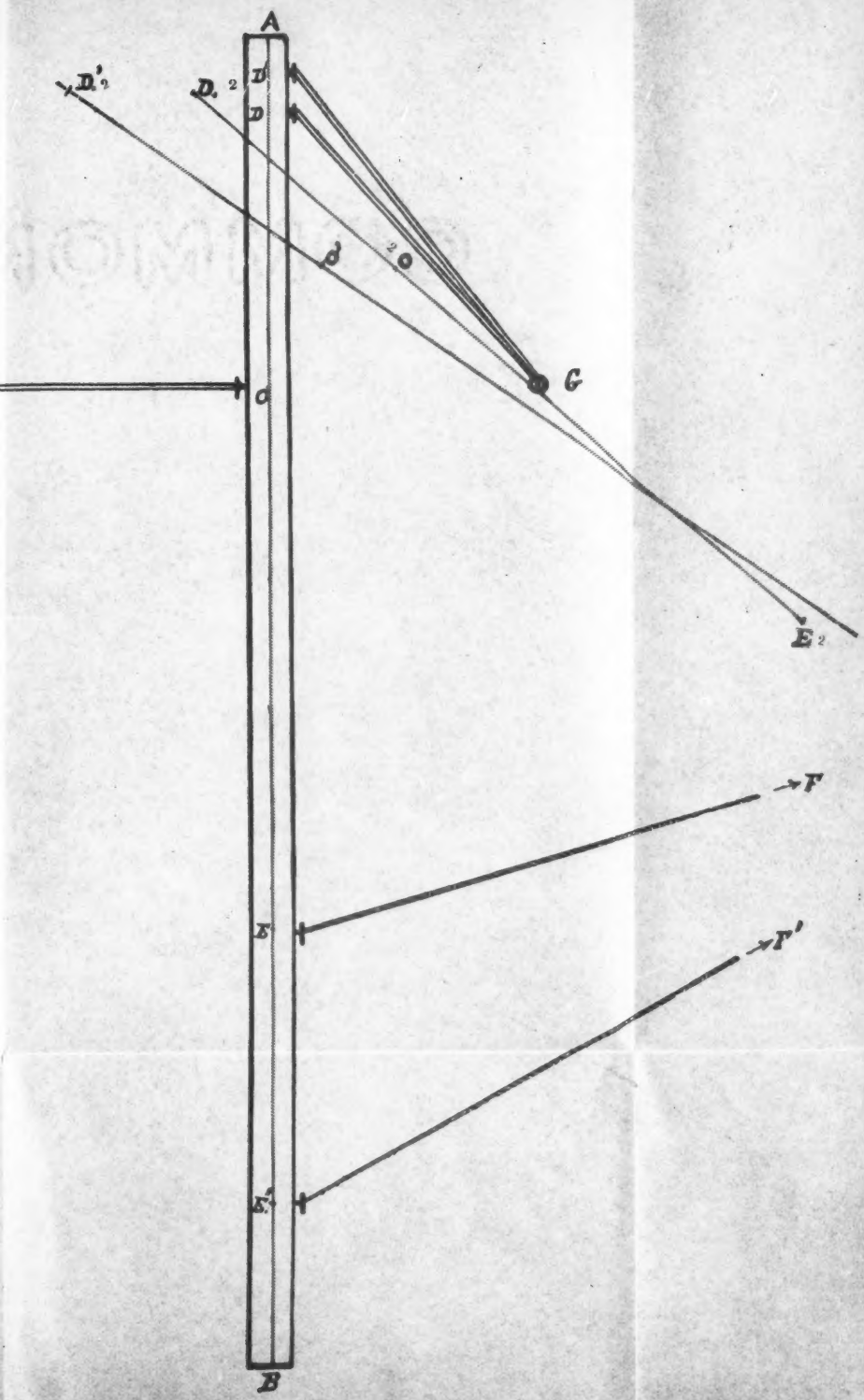
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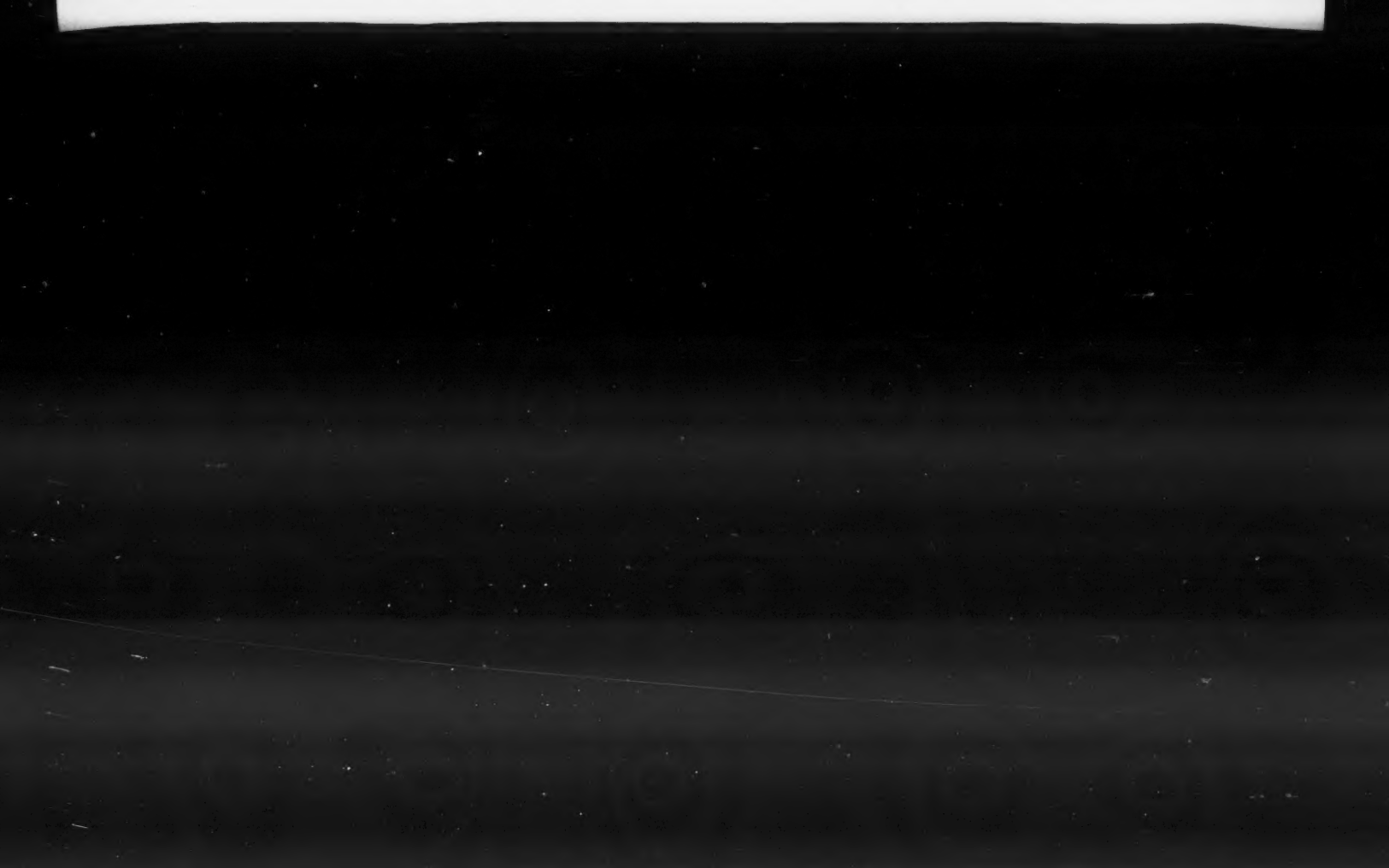

lower surface, which may prevent slipping so long as they last, but in a short time they are worn away, and then it has nothing to recommend it beyond the ordinary hunting shoe. This shoe is made by machinery and, like other machine-made shoes, is, from the material of which it is manufactured proving either too soft or too hard, likely to wear too rapidly or to prove brittle.

To apply a shoe in such a manner as to allow the frog to receive a due amount of pressure, has always been the aim of those who have made the horse's foot an object of careful study. To this end I desire to draw the attention of those interested in the welfare of our best friend, the horse, to a method of shoeing which is, according to my idea, physiologically correct, and which I should like to see adopted throughout the army.

Knowing that the horse's foot is admirably constructed to perform certain definite functions, and that the hoof under ordinary conditions, is designed to act as the medium through which the most important of these are carried out, but that its circumference is liable to be broken away and worn when rudely exposed, we have only to substitute for a certain portion of this perishable horn an equivalent portion of more durable metal, and the hoof is secured from damage by wear, while its natural functions remain unimpaired.

With the method of shoeing that I advocate, the hoof would be left in a natural condition, so far as frog, sole, and wall are concerned; and I would imbed a narrow rim of steel, no thicker than the wall around the lower circumference of the foot, that exposed to wear, like the iron heel of a man's boot.

I will now briefly describe the way in which the work should be done. The sole and frog as well as the bars are left unpared, the crust or wall is beveled off at the edge by the rasp and by means of a knife with a movable guide; a groove is made along this beveled edge to receive the shoe; this groove is made a little more shallow than the thickness of the sole, and slightly narrower than the wall, not extending beyond the white line separating the sole from the wall. Into this groove is fitted the shoe; this is a narrow, but deep band of steel, narrower at the top than at the bottom, and forged in such a manner that its front surface follows the slope of the foot. It is perforated by six oval nail holes of small size, and could be provided with a clip at the toe; its upper inner edge is rounded by the file, to prevent it pressing too much against the angle of the sole, and the branches are narrow and beveled off toward the ground. The nails should be very small and have a conical head and neck, and be of the best quality. It is best to fit the shoe in a hot state, as it must have a level bed and follow exactly the outline of the wall. After it has been fitted it is advisable to remove, with a small drawing knife, a little of the horn from the angle of the groove in the hoof to correspond with the rounded inner edge of the shoe; this insures a proper amount of space between the latter and the soft horn at the margin of the pedal bone. In strong hoofs the shoe can be buried almost entirely in the groove, but in those which have

flat or convex soles, with low heels, it would not be safe to imbed it too deeply.

The application of the hot shoe in fitting should not extend beyond a very few seconds; it should then be tempered and nailed on in the ordinary manner. The nails should be placed wide apart at the toe and rather close at the heel; every nail must be driven in sound horn, otherwise the shoe, being so narrow, may get a branch bent out, and nothing more is needed than to lay the clenches down evenly on the wall; no rasping is required. When the shoe is attached to the foot, it is readily perceived that a portion of the sole and bars, and the whole of the frog meet the ground as in the unshod state. This shoe being thicker than wide it possesses a certain elasticity, and adapts itself to the successive movements of dilatation and contraction of the horny box, however limited they may be.

The great advantages of this method of shoeing consist in its simplicity, when farriers have been made to understand it; its placing the hoof in a natural condition, so far as its ground-face is concerned; the small number and size of the nails required to retain it; the lightness of the shoe and the security it gives to the horse in motion. Experiments made at my station with this shoe have up to date proved satisfactory.

In conclusion, I should like to remark that in our army the subject of farriery is often looked upon much as it is in civil life—as a matter that concerns the farrier only, and tradition and routine extensively prevail. In saying this, however, I do not intend for a moment to insinuate that the army veterinary surgeons are averse to giving their attention to a most important, though it may appear a minor, part of their duty. On the contrary, many of them do so and with advantage to the service; but there is not the same encouragement offered either to veterinary surgeons or farriers in this respect as there is in European armies. In the French army, for instance, there are schools and professors of farriery, the most notable of these being at the Cavalry School of Saumur. In these the farriers are regularly trained to a uniform and approved system before being posted to different regiments, and direct encouragement is given to these men by the institution of competitions, in which the most successful are rewarded by medals and gifts of money. It is scarcely necessary to say that in this country nothing of the kind is attempted. The Government does nothing to improve or encourage veterinary science in the least; hence the enormous losses it has sustained for so many years. With the exception of, on very rare occasions, the distribution of a prize or two at some local agricultural show to farriers, who imagine that paring and rasping, and a fantastically wrought piece of iron, constitute the acme of shoeing, the subject is thought unworthy of notice.

The remedy for this, of course, should be, in the first place, the opening of schools. A profound knowledge of the anatomy and physiology of the horse's foot is not absolutely necessary to the farrier; but a general acquaintance should be required; and practical

management in health and disease, and the principles and practice of horse-shoeing, should be thoroughly inculcated. It would be most advantageous if, when this course is adopted, farriers could be prevailed upon to attend; and if, after due examination as to their competency to practice their art in a rational manner, they were to receive certificates of proficiency, these certificates carrying with them advantages similar to those that the diploma of surgery confers upon the surgeon.

M. A. PICHÉ,
Veterinary Surgeon, First Cavalry.

BOOK NOTICES AND EXCHANGES.

I Married a Soldier. By Lydia Spencer Lane.

The foregoing is the title of a most entertaining narrative of the personal experiences of the writer. Those who endured the hardships of the early days of the "Old Army" will, no doubt, read it with great interest, as being a history which, with slight alterations of time and place, might be their own. Those who have not done so can, from this small volume, acquire an excellent idea of army life and surroundings in those troublous times that tried the souls, and the bodies also, of all concerned.

The author is the wife of a gallant officer, now retired, who served his country from the British line to the "Halls of the Montezumas," and her excellent opportunities for observation evidently were not neglected.

Everyone, without regard to vocation, can read this book with pleasure, and some can do so with profit. That very small class of our readers who are not quite satisfied with existing conditions, may do both. W. A. S

The First Maine Bugle.

This is the title of a very readable magazine published by the survivors of the First Maine Cavalry, one of those splendid regiments whose practice has since been reduced to precept, and is today taught on both sides of the Atlantic.

The object of the magazine is to publish the proceedings of the annual reunions of the regiment, matters of historic value to the same, and items of personal interest to the members. It is also the official organ of the "Cavalry Society of the United States," and publishes its proceedings.

Its articles are all contributed by members of cavalry regiments which participated in the War of the Rebellion. While most of them refer more or less to the "late unpleasantness," yet this is not by any means exclusively the case; and they all seem to be pervaded by that tone of candor and moderation which is usually noticeable in the writings of those who fought when there was fighting to be

done, and are under no necessity of displaying their prowess in time of peace.

All its articles are well written and interesting and some of them are handsomely illustrated. We note especially "The Bugler," a poem by our old friend, Mr. Henry T. Bartlett.

MILITAER-WOCHENBLATT.

No. 71: The New Drill Regulations for Field Artillery. Target Ranges at Paris, France. Insignia for and Classification of Gunners—Switzerland. No. 72: Testing and Examination of Iron and Steel, and Their Use for Military Purposes. No. 73: Drilling the Battalion in Conformity to the Drill Regulations for Infantry. The Marine Corps at the Autumn Maneuvers. Testing and Examination of Iron and Steel, and Their Use for Military Purposes (continued). No. 74: Changes in the Regulations for the Reserve—Switzerland. March of a Cavalry Regiment. Testing and Examination of Iron and Steel, and Their Use for Military Purposes (conclusion). No. 75: The Cadet Corps During the Reigns of the Emperors William I, Frederick III and William II. No. 76: Armor Plate Trials in the United States. The English Battle Ship "Thunderer." The Cavalry Horse in North America. No. 78: Battle at Mont Mesley, November 30, 1870. No. 79: Letters of General Field Marshal, Count Helmuth von Moltke. Battle at Mont Mesley, November 30, 1870 (continued). No. 80: Maneuvers of the Fourteenth Army Corps. Volunteer Service in the Colonial Forces—France. Promotion of the Officers of the Reserve—Italy. Battle at Mont Mesley, November 30, 1870 (conclusion). No. 83: Training and Equipment of the Reserve—France. Use of the Bayonet in the Russian Army. No. 85: Military Sketch from the Theatre of War at Atjeh. Disappearing Armor Turret. No. 86: Transfer of the Staff of the Nineteenth Cavalry Brigade. The Art of Riding and Its Importance to the Army. No. 88: French Societies for the Training of Nurses for Time of War. Cavalry Officers of the Territorial Reserve—Italy. The Russian Fleet. No. 89: Target Practice with Different Small Arms in the Fourteenth Army Corps. Review of the Latest Technical and Military Inventions and Discoveries. Purchase of Forage for Cavalry Horses. Maneuvers with Ball Cartridges at Waschaw. No. 90: Target Practice with Different Small Arms in the Fourteenth Army Corps. Review of the Latest Technical and Military Discoveries and Inventions (conclusion). No. 91: Equipment and Training of the Reserve—Switzerland. Military Society at Berlin. Brief Sketch of Lieutenant-General Müller. No. 93: Von Moltke's Tactical Examples. Military Academies—Italy. Fortification of Saint Maurice—Switzerland. No. 94: The Wars of the Future and Public Opinion. Von Moltke's Military Works. New Overcoat for Infantry—Austria. No. 95: Military Exhibit at the Geographical Exhibition—Moscow. Riding School for Officers at Rome. The Wars of the Future and Public Opinion (continued). No. 96: Practical and Theoretical Instruction of Non-commissioned Officers and Men as Railroad Engineers and

Firemen — Italy. The Wars of the Future and Public Opinion (continued). Some Suggestions Regarding the Drill Regulations for Infantry. Why Germany Must Increase Her Fighting Strength. No. 98: The Field Piece of the Future. No. 99: Volunteer Service in France. Age of Staff Officers and Captains in the French Army. No. 100: Railroad and Wagon Trains in the Next War. France's Views on the Military Situation of Germany. Kriegsspiel. Distribution of Bible Texts in the German Army and Marine Corps. Marine Artillery Regiment in France. No. 101: Railroad and Wagon Trains in the Next War (conclusion). Result of the Recent Examination for Promotion of Captains.

REVUE DU CERCLE MILITAIRE.

No. 36: The Technical Troops of Austria-Hungary. First Combats of the Army of the Rhine (continued). The Swiss Army in 1891 (completed). Passage of Rivers, by Cavalry, on Improvised Bridges. The Two Years' Service in Germany. No. 37: The Dandetean Gun, Caliber 6.5 Millimetres. Russian Naval Maneuvers of 1892. Technical Troops of Austria-Hungary (completed). Maneuvers of Cüxhaven. Calling Out Troops in Belgium. The New Law for Recruiting in Spain. The New Ration in Italy. Militia of the Seventh Italian Army Corps. No. 39: The Chinese Army of the Green Standard. The Divisions of Reserve in the Maneuvers of 1892. The Military Casino of Vienna. The Smokeless Powders of Troisdorf and Wetteren. Reorganization of the Spanish Army. Swiss Artillery of Position on the Summit of Gorschen. No. 40: The Chinese Army of the Green Standard (continued). The Divisions of Reserve in the Maneuvers of 1892 (continued). The Military Casino of Vienna (completed). Official Interpreters in Germany. No. 41: The Minister of War and the Landwehr in Austria-Hungary. The First Combats of the Army of the Rhine (continued). New Regulations for Italian Infantry. Composition of the Belgian Field Army. No. 42: The Divisions of Reserve in the Maneuvers of 1892. The Minister of War and the Landwehr in Austria-Hungary. The Austro-Hungarian War Budget for 1893. Changes in the Uniform of Italian Officers. No. 43: First Combats of the Army of the Rhine (continued). The Minister of War and the Landwehr in Austria-Hungary (continued). The Powder Factory of Santa Barbara in Spain. Preparatory Course at the Italian War College. Military Schools in Russia. No. 44: Letter of an English Officer on our Grand Maneuvers. The Proposed Military Law in Germany. The National Target Competition in Italy. No. 45: Impressions of the Maneuvers. Italian Mobilization. The War Budget of Holland for 1893 and the Position of Amsterdam. Projects of General Pelloux. Organization of Kurd Cavalry Regiments in Turkey. No. 46: The Chinese Army of the Green Standard (continued). Letters of an English Officer on Our Grand Maneuvers. Reorganization of Technical Troops in Austria-Hungary.

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October: Methods of Marching, by H. R. Brinkerhoff, Captain Fifteenth Infantry. Some Yarns Spun by an Officer of the Old Navy, by D. B. Conrad, M. D. Europe in 1890–91 (continued), by S. B. Holabird, Brigadier-General, U. S. A. (retired). The Coming Revolution in Strategy and Tactics, by H. Elsdale. Lo—With an Attachment, by Albert Tracy, Brevet Colonel, U. S. A. November: Wanted—A Definite Policy, by C. H. Rockwell, Commander, U. S. N. Europe in 1890–91 (continued), by S. B. Holabird, Brigadier-General, U. S. A. (retired). The Last Great Roman, by Sir Herbert Maxwell. Torpedoes and Submarine Mines, by Frank L. Winn, Lieutenant, U. S. A. December: A Plea for Seamanship, by Charles H. Rockwell, Commander, U. S. N. A Cavalry Raid, by Albert G. Brackett, Colonel, U. S. A. (retired). Where Did Columbus First Land in 1492? by Henry A. Blake. The Plastoon Secret Detachment on the River Araks. The Guardian of Fort D'Albert, by Caroline Frances Little. Europe in 1890–91 (continued).

THE FIRST MAINE BUGLE.

No. 9: Twentieth Annual Reunion. After Appomattox (No. IV)—Fort Darling, by Major Henry C. Hall. Bowdoin Boys in Labrador, by Jonathan P. Cilley, Jr. The Bugler, by Henry T. Bartlett. The Country For Which You Fought (illustrated), by Edward P. Tobey. Beguiled by Chance, by a Comrade of the Regiment. Sketch of Our Regiment (illustrated), by George L. Kilmer. A Night With Mosby, by C. W. Wiles. One of Our Boys in the Sixth Massachusetts, by W. H. Luce. No. 10: The Country For Which You Fought (continued), by Edward P. Tobey. A Review—Poem, by Chaplain Frederic Denison. After Appomattox (No. V)—The Cow Case, by Major Henry C. Hall. Jim—Poem. Bowdoin Boys in Labrador (continued), by Jonathan P. Cilley, Jr. Number Four—Poem, by C. C. Hassler. Up the Shenandoah Valley and On to Appomattox, by General J. P. Cilley. A Skirmish at Little Auburn, Va., by C. W. Wiles.

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

September: Magazine Rifles; Their Latest Developments and Effects, by Captain Walter H. James, R. E., F. R. G. S. Saddles, by Colonel Crichton, Hampshire Yeomanry. Color Blindness, by R. B. Carter, Esq. Torpedo-Net Defenses. The Military Situation in Upper Egypt. Cavalry Swimming. October: Colonel von Löbell's Annual Reports Upon the Changes and Progress in Military Matters During 1891. The French Naval Maneuvers. The Field Gun of the Future. November: The Lagos Expeditionary Force, 1892. German Divisional Cavalry. The Russian Navy. A Long Distance Ride. The Distance Ride from Berlin to Vienna. Experimental Aluminium Horse-Shoes.

THE PENNSYLVANIA MAGAZINE OF HISTORY AND BIOGRAPHY. October, 1892.

The Ancestry and Earlier Life of George Washington. Owen Biddle. Genealogical Gleanings Contributory to a History of the Family of Penn. Christopher Ludwig, Baker-General in the Army of the United States During the Revolutionary War. A Brief Account of the Swedish Mission From its Commencement Until Its Cessation. Extracts From the Orderly-Book of Captain John Nice, Thirteenth Pennsylvania Line.

JOURNAL OF THE MILITARY SERVICE INSTITUTION. November.

Guns and Forts, by Colonel King. Queries on the Cavalry Equipment, by Lieutenant Cole. Artillery Service in the Rebellion, by General Tidball. Water Supply in Desert Campaigns, by Lieutenant Beckurts. Skobeleff's Last Campaign, by Captain Clark. Recruiting Experiences, by Lieutenant Hawthorne. Our New Infantry Drill Regulations, by Lieutenant Crane.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION.

No. 11: Fire Discipline; Its Necessity in a Battery of Horse or Field Artillery, and the Best Means of Securing It. Skill-at-Arms. Mountain Artillery Progress. Achievements of Field Artillery. No. 12: The United States Military Academy at West Point. Troop "I," R. H. Artillery, at Fuentes d'Onore. No. 13: Mounting Hydro-Pneumatic Disappearing Guns.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA. August.

On Repairing and Constructing War Railways. The Most Effective Use That Can be Made of Signaling on a Modern Battle-Field. The Combined Tactics of Infantry and Artillery. The Revised Scheme for a Government Mule Farm in the Hills. The Penetration and Effects of Magazine Rifles.

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Report on Camp Murray. The Homestead Campaign. Commissary in the Field. Oregon National Guard. National Guard of Washington. Militia Appreciated. Well Deserved Criticism.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE. No. 63.

First Aids to the Injured, and Transportation of the Wounded. Six Lectures Delivered to the Naval Cadets of the First Class, During the Winter of 1892, by Henry G. Beyer, M. D., Ph. D., M. R. C. S.

IOWA HISTORICAL RECORD. October, 1892. No. 4.

Governor James W. Grimes. The Talley War. Recollections of Indian Life on Old Man's Creek in 1840.

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Electricity and the Art of War. Recoil of Heavy Guns and Its Control. Demolition of Concrete Gun Platforms. Time Fuse With Shrapnel Fire.

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